

Backwoods



Home magazine

practical ideas for self reliant living

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anthology*



Be prepared for “after the accident happens”

By Diana W. Morgan

One out of every three Americans is the victim of some type of accidental injury each year. For friends and family members of the patient, waiting for the ambulance to arrive can be a harrowing experience. Those of us who live in non-urban areas are often far from any emergency medical help. You don't have to sit helplessly by and work yourself into a panic, however.

As a firefighter/Emergency Medical Technician (EMT) for a rural fire and rescue department, I'm often met at the door by a frantic family member. There are several simple things an untrained person can do that may mean all the difference to a patient's well-being. Having something to do in a medical crisis can be very therapeutic for the bystander as well.

Don't panic

First of all, don't panic. Your fear will quickly transmit to the patient. In some circumstances this can have catastrophic results. Asthma, heart attack, and impending shock can be escalated into lethal situations very rapidly, and the patient needs to be kept calm. Speak in a soft soothing voice. It's very easy to run around the house yelling, but don't let yourself do it. Take deep breaths, count to 10, curl your toes, whatever works for you. Remember the patient needs you. By the way, acting calm has the beneficial effect of causing you to actually become calm.

If you're not alone with the patient, have someone else call for help. It's been harped on time and again, but *do* have the emergency number by the

phone and make sure everyone in the family knows where to find it. Don't rely on 911 because not all areas have the service yet; you may get a 911 operator in another state. She can usually connect you to your local emergency service, but it will cost you valuable time.

If you are alone with the patient, reassure them first, then tell them you are phoning for help. They may try to

and exactly where the patient is and how to get there. This helps the responding medical personnel to find you and be prepared to treat the problem efficiently.

Here is a typical call to a dispatch center: “Help! My husband fell out of the tree. Come quick.” Then the caller hangs up. This is of little help to the responding crew.

The caller should have told the dispatcher something like this: “My husband has fallen off a ladder while pruning a tree. He's 59 years old and has a history of diabetes. He fell from a height of about 10 feet, landing on the grass. He must have hit his head on the way down because he blacked out for a few moments. He's conscious now and complaining of pain in his upper back and left shoulder. He's still lying in the orchard. We're the last house on Nosuch Road. It's a white farm house and the drive to the orchard is on the left side of the house. Have your people come back there. Do you need any other

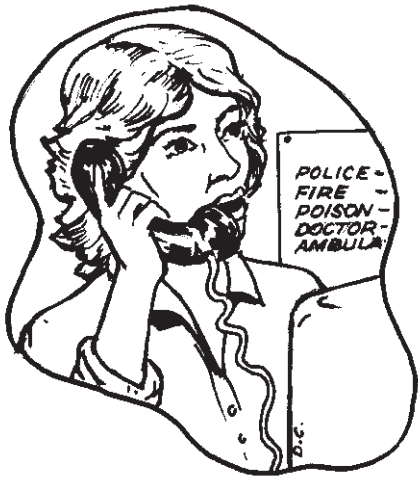
information at this time? Good. I'm going back to stay with my husband. Thank you.” This tells the responding personnel all they need to know initially. Your information will be relayed to them as they are responding to the call. It may seem like you've said way too much, but it will really help save time once the rescue squad gets there. They will know exactly what the problem is and be prepared to treat it as soon as they arrive.

Once you've called in the problem and given as much information as you can, go back to the patient and continue to keep him as calm as possible. If the person is on any medications, collect them all together ready to show



argue you out of calling the rescue squad. If the injury is truly only a scratch, then listen to them. Otherwise, tell them you don't feel you can handle the situation on your own. If the emergency medical services people aren't really needed, they'll just go away. Few emergency services resent being called out for something that turns out to be less serious than you originally thought. A situation can always go the other way too, and it's good to know help is coming if that happens.

When you call the rescue squad try to describe just what happened, what and where the injury is, the age of the patient, any pertinent medical history,



the rescue people when they get there. Obtain more details of what happened if you did not actually witness the accident. Find out how the patient is feeling, how the pain is now and if it's moved around anywhere. If possible, send someone out to the street to meet the medical personnel and guide them to the patient. This is a perfect job for children, who are also frightened, concerned, and want to help.

Keep the patient talking. This accomplishes three very important things: It helps keep them calm, alert, and in the case of a severe injury, conscious. It also aids you in keeping your cool. If you're asking questions, it's harder to panic.

Do's and don'ts

So far we've talked about general considerations that apply to all medical rescue situations, but there are some specific do's and don'ts that relate to particular injuries. Thanks to TV shows like "Rescue 911" people are more familiar with emergency procedures, but these shows often skip important basic care for the more flashy practices like defibrillation and CPR. Let's face it—they make for better drama, but the basics still count.

When severe trauma occurs our bodies go into a protect mode. Chemicals in the brain and adrenalin are rapidly pumped through the system. The out-

ward effect of these substances is to mask pain. A person may be more seriously injured than they believe or feel. The bystander needs to take into consideration the type of injury and how it happened, and be prepared to make critical judgments for the patient. The injured person may vehemently protest that they are fine, but an hour later when nature's drugs have worn off that person may begin to feel much worse. Precious time has been lost. Don't waste time arguing; call for help. They'll get over being mad, especially if they find out later they were seriously hurt.

Any trauma to the head, neck, or back should be treated as potentially crippling or fatal. No patient who has sustained an injury to any of these body parts should be moved or allowed to move. If the patient is upright, watch for signs of what EMT's call "guarding." The person who moves his whole upper body when he turns to talk to you is probably guarding a neck injury. Try not to

Any trauma to the head, neck, or back should be treated as potentially crippling or fatal. No patient who has sustained an injury to any of these body parts should be moved or allowed to move.

ask yes or no questions of people with neck, head, or back injuries. We just can't help nodding or shaking our heads in response. Bad move for someone with a neck injury.

Not everyone with a broken neck feels pain. Movement of the head can snap the spinal cord and death will be immediate. I'll never forget a story my old EMT instructor told about a driver in an automobile accident. She was out of the car and walking around claiming to be unhurt. Since the passenger had multiple injuries, everyone ignored the driver. A few minutes later she started to feel faint. A police officer on the scene told her to sit down and put her head between her



knees. The woman had a broken neck and bending her head snapped her spinal cord. She died instantly. She had been guarding her neck injury, but no one recognized the symptom until too late.

Finally, never give fluids to anyone with a possible head, neck, or back injury. The patient may aspirate the fluid into the lungs and cause further problems. They've got enough troubles without choking to death.

Lacerations

Another frightening injury is a severe laceration. Most venous bleeding will stop within 10 minutes whether you provide treatment or not. Arterial bleeding on the other hand is life-threatening and needs immediate attention. The way to tell the difference is easy and graphic. Arterial bleeding spurts out of the wound to the rhythm of the person's heartbeat. It can be terrifying, even for the experienced rescuer. You need to stop the bleeding by applying pressure using whatever comes readily to hand, even if that happens to be your own shirt. Wad up the material and press it firmly against the wound. Elevate the wound above the heart, if possible. Applying pressure to a venous bleed should bring it under control in a matter of minutes, if not seconds. Tourniquets are no longer advised; they can do too much damage to surrounding tissue. If the pressure bandage fails to stop the bleeding, add more material to the bandage and apply more pressure. If an accidental amputation has occurred, find and save the severed part. In most cases, excepting a decapitation, of course, surgeons can successfully re-attach the amputated member.

Broken bones

In the case of fractures and dislocations, try to make the patient as comfortable as possible, but do not attempt

to straighten the injured limb. Allow them to cradle the affected area; they probably will want to anyway. Apply ice to the area and keep the patient reassured. Severe sprains should be treated with ice packs and elevated to reduce swelling. It is always advisable to have them x-rayed to rule out a fracture.

Burns

Serious burns over a large portion of the body need urgent treatment by a medical facility. The danger here is dehydration and infection. Cover the patient with a clean sheet and try to keep them still. The pain of severe burns is unimaginable. Minor burns can be treated by running the affected area under cold water or applying ice. The aim is to stop the burning process by removing the heat. Never treat a burn with grease. All this does is trap the heat inside the burn and make it worse.

Regardless of the type of injury a person has sustained, it is important to keep the patient warm. Even on a sweltering summer day the severely injured person should be covered to keep shock at bay.

Injuries to children

Lastly, a word of caution about injuries in children. They can sustain life-threatening trauma and appear totally unfazed. There have been incidents of youngsters being hit by cars and walking home, claiming to be unhurt. Children often do not present any outward signs of trauma until almost too late. Then their conditions deteriorate rapidly. You need to find out as best you can just what happened. Anything that could cause a serious injury should be treated as though it actually has, until proven otherwise. Injured children often become very quiet, so any atypical behavior by the child is a good indicator that something is wrong.

First aid kits

It will help make the time surrounding the occurrence of an accident less hectic if you keep a few supplies on hand. Everyone in the family should know where these items are kept. Forget commercial first aid kits; they don't carry enough of what you will need and do carry some items you'll never use. You're better off making up your own. It's cheaper too. Get a good supply of four-inch by four-inch gauze bandages. These are what EMTs use. Also get a roll of what's called "cling." It's rolled gauze that clings to itself. This can hold pressure bandages in place without needing tape or pins. Put a small pair of sharp but blunt-edged scissors in with the cling so you've got something to cut it with. These can also be used to cut away clothing to get at a wound. Keep some commercial ice packs handy. There are two different types. One is reusable and filled with a gel that can be put in the freezer. The other type is disposable and contains water and an interior bag of chemical. You have to break the inside bag by squeezing it and then mix the contents for the bag to become cold. I recommend the former type; it's cheaper. Keep a warm blanket with your kit. This will remind you to cover the patient. Make up as many kits as you think you'll need. One for the car, house, or barn. Keep them stocked as items get used.

The majority of accidents occur in and around the home. Being prepared for the eventuality of one can take much of the panic out of the situation. It's a frightening experience to see a loved-one hurt and in pain, but it helps to know that we are not powerless. We can do something to help turn the situation around. Firefighters are taught to choose a course of action that will expedite a favorable outcome. That's what everyone wants in an emergency, and you can be part of it. Δ

Acorns are not just squirrel food

By Christopher Nyerges

For countless generations of American Indians, acorns were the staff of life. Some families gathered up to 500 pounds of acorns every September through November as they ripened. Today, most people regard acorns as food only for squirrels, and literally tons of this good food go to waste every autumn in the forest and on city streets worldwide. What a shame. Let's learn how we can rediscover this authentic American food.

There are more than 200 species of oak including deciduous and evergreen trees and shrubs. All oaks are easily identified by their acorns, which are nuts set in scaly caps.

Making acorns edible

All acorns, regardless of species, can be consumed once they are processed. Acorns are not eaten raw because the presence of tannin makes them too bitter, and so a number of methods have been devised to rid the acorns of their tannic acid. One of the Indian practices was to bury the acorns in a swamp and return the following year. This removed the tannin and blackened the acorns. However, there are quicker methods which can put food on the table tonight.

Sometimes shelled acorns were wrapped in a cloth container (like a burlap bag) and submerged in a river overnight. The flowing water would

leach the water-soluble tannin from the acorns by morning.

Some Indians would shell and grind the raw acorns into meal. Then this meal was put into a shallow depres-



The jar on the left holds acorns which have been peeled and are soaking in water to leach out the tannic acid. The traditional mano metate, used for grinding nuts and grains, holds live oak acorns.

sion tamped into a river's shady edge. Hot and cold water were poured over the meal for most of the day, washing the tannin out into the sand. The resultant acorn mush would then be carefully scooped from the sand and either dried or eaten as-is.

If dried, the final product would be boiled into a cooked mush, and it was usually eaten cold. The acorn flour was usually baked into bread in crude ovens or used as a base for soup. Corn meal often was mixed into the acorn meal.

But unless you're out camping, or have a strong desire to practice "the old ways," most folks today process their acorns in their kitchen. Boiling is the quickest method to render acorns edible. The shelled acorns are boiled, continually changing the water each time it becomes brown. You know

they're done when you taste them and the bitterness is gone. Unfortunately, boiling results in a loss of oils and flavor.

Another leaching method involves nearly bringing the water to boil in a pot of shelled acorns. You don't actually boil the water, however. You then turn off the water and let the acorns sit for 24 hours. Then you pour off the water, add fresh water, nearly bring it to a boil, but then again turn off the water and let the acorns sit 24 hours. You repeat this process for a third day, and by then the acorns are usually free of tannic acid. This "cold" leaching results in a more flavorful, more nutritious acorn that is softer and easier to grind.

Once leached, the acorns must be thoroughly dried so as to ensure a long storage life. The dried acorns can then be ground with a hand mill, stone grinder, or heavy duty blender. The resulting flour can be used in bread, muffins, pancakes, grits, soup, etc., either alone or mixed with wheat or corn flour.

Acorn bread

A favorite acorn bread recipe is as follows:

1 cup acorn flour
3/4 cup whole wheat flour
1/4 cup carob flour
3 tsp. baking powder
1 tsp. sea salt
3 Tbsp. honey
one egg
one cup raw milk
3 Tbsp. oil



Christopher Nyerges grinds acorns that have soaked for five days to leach out the tannic acid. After it is ground, the meal is dried and stored for future use.

such things as raisins, sliced fruit, honey, butter, and cream.

Analysis of the acorn meal has shown it to be 65 percent carbohydrates, 18 percent fat, and 6 percent protein.

In the wild, acorns are eaten by mallards, pintails and other water fowl, deer, elk, peccaries, and mountain sheep. Quail eat little acorns, and squirrels and chipmunks traditionally store them for winter.

Are acorns poisonous?

Livestock that have eaten large amounts of the young foliage and buds have become ill and, in some cases, died within a few days.

Eating large amounts of the raw acorns can lead to toxicity due to the tannic acid. Humans never eat toxic amounts of raw acorns because of the extreme bitterness. Those who have persisted in eating raw acorns have nearly always been stopped far short of death because of the onset of frequent urination and constipation, abdominal pains, and extreme thirst. However, anyone with a normal sense of taste would find it nearly impossible to consume raw acorns in large amounts, unless they were either coerced into doing so, or needed to do so to prevent starvation.

Kingsbury, author of Poisonous Plants in the US and Canada, included raw acorns on his list of poisonous plants. He stated that if large quantities were eaten over a long period of time, bloody stools and other symptoms would result. Euell Gibbons, author of several books about natural foods, responded to Kingsbury's reference to acorns as follows:

"If you ate raw acorns in large quantities maybe a bushel every day for 10 years — you'd probably get something like that." Δ

Mix well and bake in greased pan for about 45 minutes (or longer) at 250 degrees.

I use the above recipe for making pancakes simply by adding more milk or water until the consistency is correct for pancake batter.

Soup or mush

Southern California Indians commonly used the leached and ground acorns as a base for soup or mush. To use as a soup base, mix approximately two cups of the meal with 8 cups of water. Add diced onions, potatoes, carrots, wild greens, and seasonings to suit your taste.

To use as a breakfast mush, add milk and/or water to the acorn meal to your desired thickness. Serve with whatever you would add to oatmeal,

A country moment



Bethany Simons, 7, Israel Simons, 3, and Alexis Simons, 5, of St. Marys, West Virginia, cuddle their four-legged fuzz balls.

Ayoob on firearms

By Massad Ayoob

Kids, values, and “junior shooting”

By Massad Ayoob

*“To ride, shoot straight, and speak
the truth;
This was the ancient Law of Youth.
Old times are past, old days are
done,
But the Law runs true, O little
Son!”*

I grew up reading that classic poem. As an adult and a parent, I’ve tried to live up to its values. Think about it: if you can’t be a role model for kids, what the hell good is the creature you turned out to be?

I rode, shot straight, and spoke the truth. I was involved in my share of Code Three pursuits in almost a quarter century “behind the badge,” and the only two fugitive vehicles that got away each had one helluva head start.

I shot straight, winning the state championship of police combat shooting more than once with the handgun I wore to work, instead of a target pistol. And, because I never lied, I whipped in court lawyers who had forgotten more courtroom weasel tricks than I had ever learned, but had never mastered the near-impossible dark art of impeaching an honest cop who could articulate the truth to the Triers of the Facts.

Three days back now in the city from a refreshing sojourn with family at the log cabin by the lake, I reflect on these values. I have daughters, not sons, and they need all the more training in how to level the playing field from now to adulthood to the end of their days, in a society whose current President stands accused of sexual harassment and once told the press how he’d like to date the mummy of a

pubescent South American girl who had been murdered in ritual sacrifice. (Don’t take my word for it—check the archives of UPI and AP.)

Longtime readers of *Backwoods Home Magazine* remember me talking about Richard Davis, the self-made millionaire who established his entire factory in the rural community of Central Lake, Michigan once he made it big. Richard’s factory produces *Second Chance* brand concealable police body armor. Richard, the inventor of the product, is “the man who bullet-proofed America’s police.” Never a cop himself, Richard was a pizza shop proprietor who won a shootout with a trio of armed robbers and, hit twice himself in the course of that gunfight, decided that there had to be something better to stop bullets with than one’s own body. The rest is history: over 2,000 lives saved thanks to the armor Richard developed, some 700 saved by his brand alone.

Davis, a strong advocate of private citizens’ Second Amendment Rights to no one’s great surprise, began in 1975 the *Second Chance Shoot*, a prize-rich tournament in which cops and lawfully armed citizens alike take backyard plinking to its apotheosis, shooting bowling pins off wide tables instead of “tin cans off the back fence.” Four hundred to six hundred shooters attend each year, from backwoods farmers to national champions like Jerry Barnhart and Jerry Miculek.

Old guys can win, like Ken Tapp, the record-holder who is 66 years old. Women can win, like Alice O’Hara of Canada and *Backwoods Home* subscriber Connie Gabrielska, who both finished in the top 4 out of some 500 competitors, mostly male, using 12-



Massad Ayoob

gauge shotguns loaded with brutally kicking buckshot in the shotgun event this year.

And now, kids can win!

At the 1996 shoot, John Maxwell and I finished first and second out of some 500 competitors in the snubnose revolver event, John blowing 18 pins off a table with 18 rounds from a short barrel Smith & Wesson revolver tuned by master gunsmith Al Greco in 14.3 seconds, and me doing the same in 14.5. We both made a point of standing in the winner’s circle with our kids, Cody Maxwell, then 14, and Justine Ayoob, then 11, as we accepted our prize guns. And we said to each other, “Hey, why isn’t there something like this for our kids?”

We made it happen. John Maxwell was the one who ran with the ball and

convinced Davis to put together a Junior Championships if John and I could get the prizes squared away. Hey...*no* problem! In two or three days on the phone, which is tough from Central Lake, Michigan, whose phone system is worse than I've worked with in Third World countries, we had two dozen guns committed, most of them from *Second Chance* shooters who understand the importance of teaching responsibility to the next generation.

Suffice to say, the *Second Chance Junior Championships of 1998* will be the biggest tournament for young shooters in the history of handgunning. Almost 30 major value prizes are already committed. *Second Chance* veteran Tom Sheppardson volunteered to consult with us, bringing in his life experience as a middle school professional educator. Additional volunteers with experience teaching guns to kids are always welcome. John and I know the importance of this: he brought his son Cody up to where the kid is being scouted for full scholarships for college for his marksmanship ability, and I watched my firstborn daughter, Cat, win the open *Women's Championship* at the *National Tactical Invitational* a couple of weeks after she turned 19.

The *Second Chance Juniors' Championship of 1998* will see those 13 and younger shooting light-kicking guns that won't give them carpal tunnel problems from recoil later, and the 14 to 17-year-old class shooting the same powerful guns their parents need to blow heavy bowling pins three feet back off a table. They'll all learn the rules kids need to absorb early: that if you level the playing field, you can beat those you thought unbeatable... that in this country, you can come down off the porch and "run with the big dogs"...and that in shooting, unlike almost any of the politically correct sports, you can go head-to-head with the world champions, taking all the money if you beat them at their own game...and at worst vying against your

own kind in fair competition, junior to junior.

Anyone interested in bringing (or sending) a kid to the historic first annual *Second Chance Junior Handgun Championships of 1998* can call toll-free 1-800-253-7090 for full information. Anyone interested in donating a prize to the Juniors (age 14-17) or the Sub-Juniors (age 13 and down) should contact John Maxwell, 1138 Ponderosa Way, Woodland Park, CO 80863.

Maybe the old times are past and the old days are done, but the law of the little sons (and daughters) still runs true: any discipline in which a child can beat an adult if he or she does their best, is a discipline that teaches the values of life. Shooting is such a discipline, and in June of 1998, the *Second Chance Junior Championship* will validate that truth. Δ

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Résumé

*I tried hard to belong.
I did my job,
Honed my skills,
Attended the meetings,
And bought into the retirement plan.
But I found myself drinking—
A little more each night.
And the years were like birds
Migrating to some sunnier clime
From which they would never return
While I stayed on to bear the deepening winter of my life.
And, even if those around me didn't notice,
I paid less attention to what I did
And got fewer and fewer of my tasks done
As I jumped from job to job
Barely keeping ahead of my mounting incompetence.
Each company was like an empty bottle rolling under the bed
Until one day
I realized the bottles, real and metaphoric,
Were piled too high
And I quit the last company just hours before I was to be fired.
It was like
I'd just taken my finger
Off the trigger of a
Gun.*

John Silveira
Ojai, CA

Let your imagination guide you to making money in the country

By Richard Brock

Making a living in the country can be a lot easier than one might think. The way the world is nowadays, people are too busy to do a lot of their own little chores and that's where a lot of your opportunities come in. Several of the following ideas I have tried myself, some come from others. I hope you find something in them that you can use.

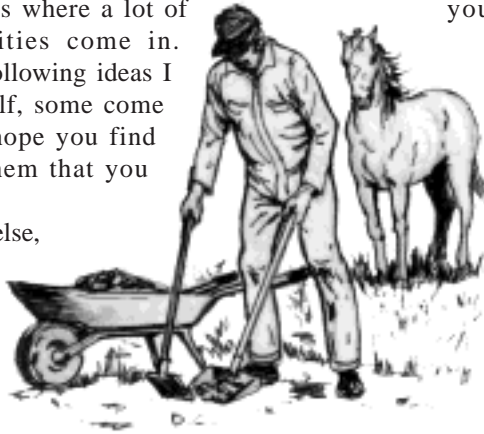
Like anything else, the hardest part is getting started. What worked for me right from the start—and still does—is to hire myself out as a laborer on day-to-day jobs or short-term projects. You may not want to work eight hours a day, five days a week, so keep that in mind when committing yourself. After a few weeks of this kind of work you will have a good idea of what's needed in your area. Then you can decide if you want to start your own business or continue doing what you are doing.

I have three companies I work for on a work-as-needed basis; two are roofers and one is a real estate company. I found that if I charge \$5 to \$7 per hour I can stay as busy as I want—and I often get paid more than what I ask for. What is important is to show people you are willing to work at almost anything for a reasonable wage.

When working for myself, I try to find things to do that will cost me very little to get started or will return my investment fast. I don't like taking chances. Here are a few ideas that you might do around the house.

Garden products, crafts

If you start some of your own plants to put in the garden, start a few extra to sell. Taking cuttings off of some house plants to start others will also help you a little. Some of your extra garden



products may also be sold. You can sell milk, eggs, and some extra animals also.

There are many home-made crafts that sell well, too. But rather than me suggesting some,

you should go to some of the stores in your area that sell such things. This trip will give you a good idea of what your area wants. Then you can add some things to be different.

You don't have to have a store from which to sell your items. If you ask around, you will probably find a few local flea markets or craft fairs where you can sell. But don't leave out the possibility of selling some of your crafts to local stores.

By the way, while there are many ways to make money at home, learn from me; I tried many mail order work-at-home schemes, and the only people who made money at these were the people I sent mine to.

Your own business

The next thing would be to start your own little full-scale business. There are a lot of things you can get started in that have a low start up cost. Many of them have a pretty good demand also. Some of these would be

lawn care; gardening; trash hauling; cutting and/or hauling firewood; putting up, repairing, or cleaning rain gutters; window cleaning; painting; putting up or fixing fence; and what I do most—the handyman business. I have found that as long as I do what I say I'm going to do and do the job for the price I quote, I have no need to advertise. Word of mouth will keep me busier than I really want to be. Remember, keep it simple and reasonable.

This next one is not my idea but it gives you an idea of the opportunities out there, and I hope you at least get a chuckle out of it: a pooper-scooper business. That's right. Making money going to people's yards picking up Fido's little gifts. Sounds crazy, right? Well, I've heard of a lot of towns where these little businesses are doing well. It goes back to what I've been saying: as long as you are willing to work and keep your prices reasonable, you are limited only by your imagination.

Right now I clean carpets, move furniture, do a little painting, some roofing, and whatever else I can find to make a little money. I have simple goals: to have my land paid for, pay a few other bills I have, and add a few improvements to my place. I want to spend as much time on my land as possible.

I hope I have given you a few ideas. If nothing else, you should know that you can make it, but it takes determination and willpower. Take a careful look around you. The money is there as well as the work. All you have to do is figure out how to get it. Life is simple; people make it complex.

It is wise to check with your local city or county government to make sure you do things the legal way. It is always wiser to be on their good side than bad. Remember to keep it simple and reasonably priced. Making money in the country is limited only by your imagination. Δ

You can cut your costs in half by installing a chain link fence yourself

By Tom Bartoli

Chain link fencing is a very common sight both in and outside the city—and with good reason. It is fairly inexpensive, easy to install, less intrusive than a solid fence and yet, it is an effective barrier to small to medium-sized animals and to people. Chain link fencing is nearly always installed by commercial fence companies. However, anyone of average mechanical ability can install their own chain link fencing.

There are at least three major advantages to installing chain link fencing yourself. First, it saves money—most installers charge in the range of \$2 to \$3 per foot for installation (not including materials), which is about one half the total cost of the fence. Second, you can shop around for materials and buy specific components from the dealer offering the best price on those components. You might buy your fabric from a nearby manufacturer, the posts from a home center, and get used, miscellaneous connectors from a commercial installer. Third, you can install in stages as you can afford it. You might, for example, buy and install the terminal posts this month. Then, a few weeks later, after you accumulate enough money, buy and install the line posts. Next you could buy and install the fabric. Then, finally, you could add the gates.

Basics

Chain link fencing is appropriate for many applications but it does have limitations. It is most easily installed on flat terrain, but it is adaptable to mildly uneven ground. By its very nature it is installed in straight sections but it can easily be stepped around a curve. As mentioned above, it is good for containing or excluding

small to medium sized animals, but large livestock, such as cows, can push it over. Since it is metal, extremely wet locations are not desirable, although good quality materials will stand up to the weather for years.

Materials & terminology

When buying materials be aware that chain link fencing comes in more than one grade, the two most common being residential and commercial.

Residential grade materials are, of course, less expensive than commercial grade materials, but are adequate for most uses.

As you might expect, chain link fencing has its own set of terminology associated with it. Understanding this terminology is the first step toward planning and then installing your fence. To help orient yourself, you may want to refer to Figures 1 and 2 as you read the following.

Terminal posts. These are the large posts that form corners, serve as gate posts, and terminate runs. Terminal posts are under the strain of stretched fence fabric or the weight of a gate, or both. As such they must be set securely and accurately. Terminal posts are typically 2 3/8 inches in diameter. You will need one terminal post per corner, one per end, and two per gate.

Line posts. These are the posts that stand between terminal posts. Since they are under very little stress they are smaller in diameter than terminal posts.

Line posts are typically 1 5/8 inches in diameter. The number of line posts you will need will be the number required for equal spacing, not to exceed 10 feet, between pairs of terminal posts minus gate openings.

Top rail. The top rail serves as both the upper limit of the fence and as a wedge between pairs of terminal posts that keeps them from leaning or bending under the strain of stretched fabric. Top rails are either swaged, in which case you simply slip them together to join sections, or plain, in which case sections are joined by means of a sleeve. Top rails are typically 1 3/8 inches in diameter and come in 10-foot lengths. Your top rail will equal the linear length of the fence minus gate openings.

Tension bars. These are flat metal bars that serve as the anchor point for attaching the fabric to the terminal posts. You will need one tension bar per tension band set (see below), plus one for stretching fabric (also see below).

Tension bands. These are metal bands that attach the tension bars to

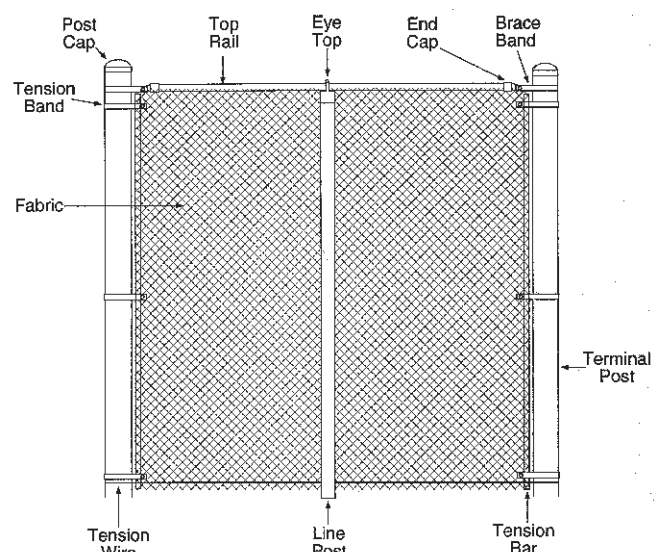


Figure 1. Chain link fence with top rail

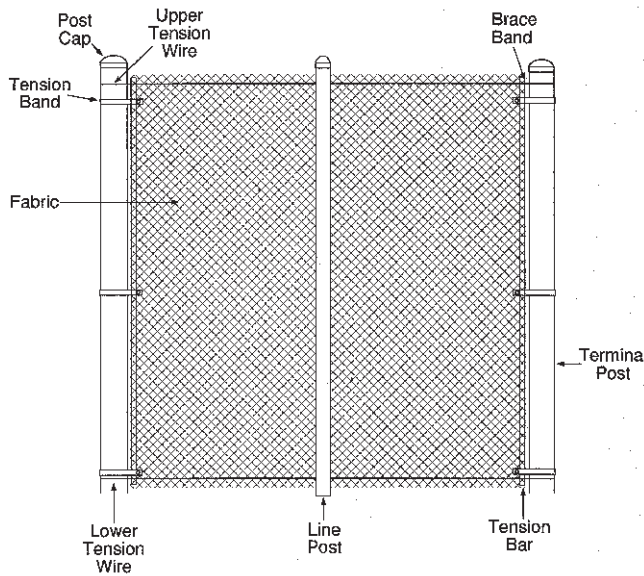


Figure 2. Chain link fence without top rail

the terminal posts. To determine the total number of tension bands you will need to first determine a set based upon fabric width: three per set for 36-inch to 48-inch, four per set for 60-inch, and five per set for 72-inch fabric. You will need one set per end post, one set per gate post, and two sets per corner post.

End caps. These are small cups that provide an anchor point for attaching the top rail to a terminal post. You'll need one end cap per tension band set if you choose to install a top rail.

Brace bands. These are metal bands used for attaching end caps to terminal posts. You'll need one brace band per cap if you choose to install a top rail.

Eye Top. These are dual purpose pieces that cover the top of each line post and provide a means for attaching the top rail to the line posts. One eye top per line post will be needed if you choose to install a top rail.

Post caps. Cover the terminal posts to prevent water and pests from entering through the otherwise open top. If you do not install a top rail post, caps should also be used for line posts. You will need one terminal post cap per terminal post and, if needed, one line post cap per line post.

Tension wire. Heavy gauge wire that forms the lower limit of the fence

and provides an anchor point for the bottom of the fence fabric. The total length of tension wire needed will be the linear length of the fence plus 2 feet per terminal post, minus gate openings. If you choose to use an upper tension wire, rather than a top rail, you will need twice as much tension wire.

Fabric. This is the actual chain link. It is available in widths (heights) of 36 inches, 48 inches, 60

inches, and 72 inches and typically comes in rolls 50 feet in length. The amount of fabric you will need will be the linear length of fence minus gate openings.

Wire ties. Wire ties are short, pre-cut, aluminum wires used securing fabric to top rails, line posts, and tension wires. You will need approximately one wire tie per linear foot of fencing.

Planning

Since chain link fencing requires a variety of materials it is essential that you plan your fence carefully. Begin by deciding whether or not you will be installing a top rail, for this will affect your materials list substantially.

Installing a top rail offers two main advantages and several disadvantages. When installed properly a fence with a top rail is somewhat sturdier than a fence without one and most people find it to be more attractive since it gives the fence a more "finished" look. The main disadvantages to installing a top rail are the cost (\$0.50 to \$0.75 per foot), the fact that it takes more time to install, and, if it is a consideration for your application, a fence with a top rail is easier to climb than one without a top rail. Omitting the

top rail is, in terms of advantages and disadvantages, the opposite of installing one—it is less expensive (\$0.05 to \$0.07 per foot), a little faster to install, and harder to climb. But the fence will be a little less sturdy and may not be as aesthetically pleasing.

After deciding about the top rail, measure, then draw a sketch of the area you plan to enclose. Then draw in the fence in the proper location. Next mark the location of all gates. It is important to note that gates are sold by their installed width. Thus a 39-inch gate requires a 39-inch opening to accommodate the gate and its mounting hardware (hinges and latch).

Once the basic fence is laid out, mark the location of each terminal post and each line post. Then determine how many or how much of each of the other components you will need using the guidelines provided.

Installation

When installing chain link fence the critical part is setting the posts properly—so take your time, double check your work, and do it right (it is no fun digging up a terminal post set in 100 pounds of concrete; I know).

Begin with the corner, end, and gate posts. These will be under strain once the fabric is installed so they must be set accurately and securely. These posts must be set in concrete, must be plumb (straight up and down), and must be set to the correct height. Set terminal posts so that their height above ground is 2 inches more than the fabric width. For 72-inch fabric the terminal posts will be set to a height of 74 inches. These posts are typically set with 24 to 36 inches of their length underground.

Next set the line posts. Line posts are under far less stress than terminal posts. They too are typically set in concrete but they can be set dry in stable soil. If you are installing a top rail, the line posts are set to a height of 2 inches less than the fabric width. For 72-inch fabric, the line posts are set to

a height of 70 inches. If you are not installing a top rail, the line posts are set to a height that is equal to the fabric width. Line posts should be spaced evenly between terminal posts but no more than 10 feet apart. However, if you are not installing a top rail, the line posts nearest each terminal post can be no more than 8 feet from the terminal post.

The easiest way to set line posts to the proper height is to mark that height on each of a pair of terminal posts, then stretch a string between the terminal posts attached at the height mark. Make sure the string is pulled tight enough to prevent any sagging. The line posts are then set so that their tops are even with the string. Line posts are typically set with 18 to 30 inches of their length underground.

After your posts are set and the concrete has had time to cure, the next step is to either install the top rail or, if you are not using a top rail, to brace the terminal posts.

To install a top rail, begin by setting an eye top on each line post, then attach an end cap to each of a pair of terminal posts using brace bands. The top rail is installed by feeding a top rail section through the eye top of the line post nearest one of the terminal posts and into the end cap. Top rail sections are then added by feeding them through the eye top on the next line post and joining them via either their swaged ends or a top rail sleeve as appropriate. The last top rail section is cut to length, joined with the previously installed sections and placed into the end cap.

The top rail must fit tightly between the terminal posts. The brace bands can be adjusted as needed to keep the top rail level between each terminal post and its nearest line post. Note too that end caps have an offset attachment point. This allows you to attach two end caps to the same terminal post (at a corner, usually) at the same height by turning one up and one down.

If you are not installing a top rail, the terminal posts must be braced. Each brace is a section of top rail placed diagonally from the top of each terminal post to the bottom of the nearest line post connected via an end cap and a brace band at each post (be sure to get brace bands sized to fit the line post). The reason the terminal post and the first line post cannot be more than 8 feet apart is that the distance from the top of one to the bottom of the other is 10 feet when they are 8 feet apart (for 6-foot tall posts).

Once the top rail is installed, or the terminal posts are braced, you can begin hanging the fabric. It is easiest to roll the fabric out on the ground next to the posts. Since fabric typically comes on 50-foot rolls, you will have to join two or more rolls for all runs longer than 50 feet. The fabric is essentially sewn together using the strand of wire included with each roll. This sewing operation is very simple. You wind the single strand into the two sections of fabric being joined by twisting it much like a corkscrew. This single wire is then connected to its mated pair by twisting and bending at the top and bottom.

To shorten the fabric, the procedure is reversed. A strand is untwisted and straightened at the top and bottom then unwound, again like a corkscrew, until it is completely removed.

Once the fabric has been made the proper length it can be hung. Start by attaching it to one of the terminal posts. Do this by sliding a tension bar into the end of the fabric from top to bottom. Next stand the fabric up next to the terminal post and attach it to the terminal post using the proper number of tension bands. When this is done correctly, the tension bar will be between the bolts through the tension bands and the terminal post. Once the fabric is attached at one end, walk along the fabric and stand it up against the posts. Hold it in place with temporary wire ties located as needed to prevent sagging and to remove as much slack along the length as possible.

Stretching

After the fabric has been loosely attached it must be stretched and attached to the other terminal post. You can stretch it by using a hand winch, or come-along, and a 10-foot length of chain with a hook on each end. You will also need something to grip the fabric. There are three options: Commercial stretchers are available and work well. These consist of a length of pipe with several small hooks on one side and one or two large hooks or eyes on the other. The second option is to make a stretcher using two pieces of wood (2 by 4s work well), several 3 1/2-inch bolts, and two eye bolts. The third, and least expensive approach, is to use a tension bar alone. This is how I did it.

When using a commercial stretcher, insert a tension bar into the fabric about 6 feet from the terminal post. Attach the stretcher to the tension bar and the fabric by hooking the tension bar with the small hooks on the stretcher. Attach the chain to the stretcher at the top and bottom. Attach the chain to the winch. Attach the winch to the terminal post.

When using a wood stretcher place one piece of wood on each side of the fabric, again, about 6 feet from the terminal post. Clamp the stretcher to the fabric using the bolts. Attach the chain to the stretcher connecting it at the eye bolts. Attach the chain to the winch and the winch to the terminal post.

To use a tension bar alone, simply insert the tension bar into the fabric and attach the chain to the tension bar near the top and bottom. Again, attach the chain to the winch and the winch to the terminal post.

Once everything is connected, draw the clamped fabric toward the terminal post using the winch. As the fabric begins to tighten, stop pulling and walk along the fabric starting from the other terminal post and pull out any slack by hand. Also, make sure that the fabric is not caught anywhere—temporary wire ties can bind and the

fabric may get caught on an eye top or two. After you are satisfied that the fabric is being stretched evenly you can resume operating the winch.

Continue this stretching and checking operation until the fabric is tight enough to be squeezed only slightly by hand. After the fabric has been stretched, it must be attached to the terminal post. Do this by making the fabric the correct length, allowing for some stretch by hand, then attaching it in the same manner as above using tension bands and a tension bar. After the fabric has been attached to the terminal post the winch can be loosened and the stretcher removed.

After the fabric has been attached a tension wire must be stretched along the bottom between the terminal posts. If you are not installing a top rail, a tension wire must also be stretched along the top of the fabric between the terminal posts.

Tension wire may be attached directly to terminal posts by wrapping it around the post then twisting the wire, which is quite stiff, around itself several times to secure it. Alternately, tension wire may be attached by wrapping around the post, then securing it with a cable or wire clamp.

In either case, attach the tension wire to one terminal post, then stretch it by hand to the other terminal post so that it runs on the inside of the fence between the fence fabric and the line posts. The tension wire must then be stretched in a manner similar to the fence fabric.

To stretch the tension wire you will need a means to grip the wire so that the hand winch can be used to pull it tight. There are commercial cable/wire pullers available that do the job nicely. These tools grip the wire tightly and have an eye for attaching a cable hook. For safety's sake I would recommend using a storable, commercial wire/cable puller (they cost around \$10). You can make your own clamp, if you are so inclined, but if you do, make certain that it grips the tension wire very securely.

As with the fence fabric, attach one end of the hand winch to the tension wire clamp and attach the other end to the terminal post. Be sure to attach the hand winch to the terminal post several inches above or below the point at which you plan to attach the tension wire to give yourself room to work.

Verify that everything is attached securely, then stretch the tension wire using the hand winch. Here too, it is best to stretch moderately, then check the wire to ensure that it is not binding or out of position. The tension wire should be stretched very tightly, tight enough to flex only slightly when you push hard on it. Once you are satisfied with the stretch, securely attach the tension wire to the terminal post stretching the wire as tightly as you can between the post and the clamp.

At this point the fence fabric must be secured to the line posts, the tension wire(s), and the top rail (if used). Do this using the wire ties. The fabric should be attached to the top rail and to the tension wire every 18 to 24 inches and to the line posts every 12 to 18 inches.

The next task is to install the gates. Gate hinges are attached to terminal posts using bolts of the appropriate length. The male section of each hinge is typically attached to the post, while the female section is attached to the gate. To prevent removal of the gate, turn one male section up and one down. Tighten the bolts securing the hinges only enough to hold the gate in place without slipping. Then, adjust the gate height so that it swings freely by moving the male hinge sections up or down as appropriate. Next, adjust the hinge sections as needed to make the gate straight up and down. Finally, tighten the hinge bolts.

So there you have it—chain link fencing at about half the cost of a commercially installed version and it is virtually maintenance free—no painting, no rotted-out posts, no loose boards, or fence nails that work themselves out of place. Δ



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You could furnish an entire homestead at Lehman's "non-electric" hardware store

By Don Fallick

Let me state my bias right at the beginning: Lehman's Hardware has been advertising in *Backwoods Home Magazine* for a long time, but I made my first purchase from Lehman's years before the magazine began publishing. I like their products, and I like the way they do business. For years I lived without electricity of any sort, and for even longer without 120 volt AC electricity. The products in Lehman's Non-Electric "Good Neighbor" Heritage Catalog were a Godsend to me and my family. (However, I have not evaluated them systematically, and this is not a review.)

Lehman's is an interesting store, serving the needs of people all over the world who choose (or need) to live independent of powerline electricity. They sell to customers who demand high quality merchandise, and are not afraid of a little work. Their customers include Amish and Mennonites, as well as self-sufficient folks from all over who appreciate old time technol-

ogy. They also carry quite modern tools and appliances that run on alternative power sources, including propane, kerosene, Coleman® fuel, and DC electricity, as well as wood and "elbow grease." Hidden among their non-electric cousins are high-quality replicas of old-time stoves, lights, etc., adapted to modern energy sources.

Lehman's also sells parts for all kinds of old-time tools and appliances that are impossible to find elsewhere. When possible, they offer American-made versions. When there are none, and they have to sell imports, they apologize. If there's a need for an item, and no other source can be located, Lehman's is not above manufacturing it themselves. Many of their goods are made locally by Amish craftsmen.

A varied clientele

In 1955, J.E. Lehman opened a one-room hardware store in Kidron, Ohio, a town that never incorporated and therefore (despite having its own post

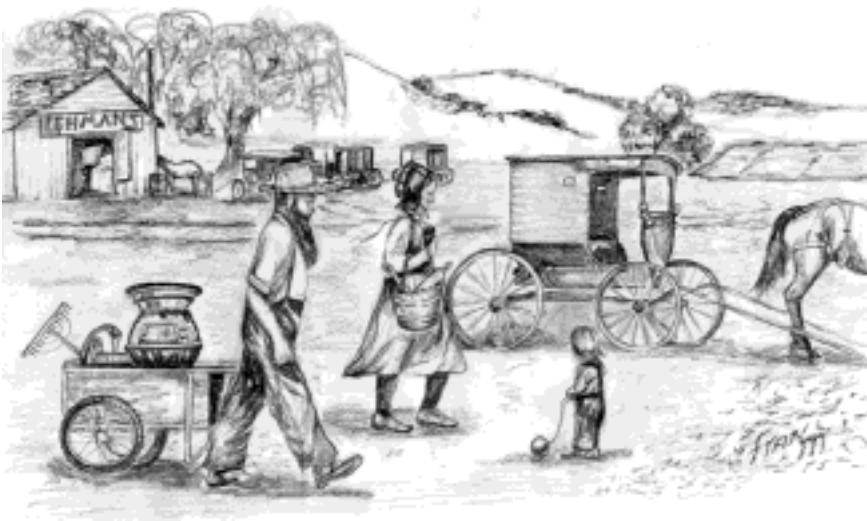
office) does not legally exist. Little more than a crossroads, this tiny hamlet serves as marketplace for the world's largest Amish community. The residents stubbornly refuse to change their customs with the times. Like the town name and the 155-foot-long hitching rail on the square, the Amish and Mennonites reflect a more traditional time, and Lehman's caters to their needs.

The trouble is, customs differ radically from clan to clan, and Lehman's must serve them all. They stock cast iron "sad irons" for one group and more efficient gas-heated irons for another, hand-cranked as well as gasoline-powered washing machines, and composting toilets that run on 115 volt AC electricity, 12 volt DC electricity, propane, and neither electricity nor propane. And for the plainest of the "plain folk," there are straight razors with plain red handles instead of the more common imitation pearl. But Lehman takes it in stride. He carries more than 2500 items, displayed in a showroom that began as a one-room store and now covers more than an acre. But most of Lehman's customers are not local: catalog sales are the backbone of his business.

I first got acquainted with Lehman's Hardware when I needed a non-electric washing machine for my home in the backwoods of Washington State. Unlike the Amish, I have no religious objection to hooking up to the grid—I was simply unable to do it. My wife and I finally settled for what the catalog describes as "Our Good Hand-washer." (Everything in Lehman's catalog is "Our Good..., Our Better..., Our Best..., or "Lehman's Own....") The "Good" Handwasher slightly resembles an outsized, heavily tinned toilet plunger with internal baffles. But the thing really works! It cut



Lehman's Hardware as it is today



The Lehman's store as it may have appeared a century ago

our laundry time in half, and cost less than \$10. I was so impressed, I spent \$80 on "Our Best Hand Wringer"—the same one they sell with the James hand-operated washing machine. That was about 15 years ago. Prices have risen, but the washer and wringer still work.

I was also impressed by the service. Shipping charges are included in all prices over \$25, yet they cost no more than similar goods from other catalog stores. The only exceptions are orders with destinations in 90001+ zip code areas. Even there, the shipping charge is never more than \$10. Lehman's ships 65% of their orders the same day they are received. That is incredible, considering the rare and hard-to-find nature of many of their products. And all products carry a 30-day, money-back guarantee.

Nobody's perfect

I do have a few complaints about The Non-Electric Catalog. "Our Best..." and "Our Better..." are charming labels, and they do help the neophyte compare items within the catalog, but more sophisticated buyers might like to know exactly what it is they are buying. Nowhere does the catalog say that "Our Best Hand-washer" is the James Washing

Machine. I've heard of the James, and I might even know someone who has one. But how can I decide to buy it if I don't know that's what they're selling? They do mention name brands of some items: Servel gas refrigerators, Aladdin kerosene lamps, even Speed Queen Washer clones made in Saudi Arabia. I would like to see brand names mentioned for all items that advertise nationally. Then I could compare prices more easily. I'd also like to see all the gift items collected into the "Gift and toy" section of the catalog, instead of scattered throughout the pages.

Perhaps my biggest gripe will not be shared by others. I'd like to see a good deal less "hype" in the catalog, especially the unsolicited testimonials found on nearly every page. I've bought and used Lehman's stuff, and I know it's as good as they say it is. I don't need to read testimonials to convince me. Maybe others like the "down home" flavor of the letters, but I wonder how many feel, as I do, that the quality of the goods is advertisement enough?

On a more positive note, it would be nice to see all the spare parts for reconditioning antique tools, lights, and appliances listed in one place. A more complete index would be very helpful, too. In short, Lehman's Non-

Electric "Good Neighbor" Heritage Catalog doesn't need to be as hard to use as last century's Sears & Roebuck catalog, just because it contains some of the same merchandise, does it?

The comparison with the Sears "wish book" is apt. Lehman's lists 27 categories of goods, including tools for kitchen, barn, shop, farm, and garden. There are also toys, books and videos, laundry and water supply, appliances, and much, much more. A body could buy everything needed to furnish an entire homestead from this one catalog. That is perhaps its greatest charm.

The catalog costs \$3 (\$4 in Canada). Write to Lehman's Hardware and Appliances, P.O. Box 41, Kidron, OH 44636, Phone: (330) 857-5757. Or visit their virtual catalog on the Web at <http://lehmans.com/>. Lehman's is a sponsor of the *Country Life and Simplicity Village*, a virtual town on the World Wide Web at <http://countrylife.net/>. Δ

Coondog Kids

*Chasing four rundown youngsters
into a sweltering car, pleading
"Don't fight"
is akin to screaming "TREE!"
to a pack of blood-lusting
coondogs
intent on their quarry.
They bay and scramble,
raking hunks of skin-bark from
unfortunate appendages
caught in the hellbent thrill
of the hunt.*

*Success is won when hunter mom
fires
"I've HAD it!" into miserable
child-prey,
crouched on the limb of the back-
seat,
tattling fruitlessly and wishing
she'd been one of the pack
instead of the kill.*

**Melissa Sullivan
St. Petersburg, IL**

From honey apple crisp to French tarts, tasty apple treats are just right for fall

By Jennifer Stein Barker

As fall nights begin to turn chilly, your apples should be ripening. There is nothing like a crisp, juicy, sweet-tart apple eaten fresh. However, cooking with apples is also one of the delights of the season. If you have access to apples off the tree, or by the box, you can make apple delights you will never grow tired of. Apples are available in over 1000 different varieties.

There are apples which mature in midsummer, varieties which ripen throughout the autumn, and others which are not ready until late in frosty fall. Some apples are sweet, many are tart, some are firm and crunchy, and some are tender and juicy. Most of the early ones are transient delights. Some of the later ones will keep, with skilled management, almost until the next early ripeners are ready.

Apples store best at 33 degrees F. with high humidity (80-90%). They should not be piled too deep or they will bruise and spoil. The depth of a standard 26-pound fruit box is about perfect. I go to the grocery store in the late summer and get cardboard fruit boxes that are made to stack without putting the weight on the contents. The store is just recycling them, so they are glad to give them away.

Why store apples? They are usually less expensive in the fall and also, even if they are not, you can often get varieties direct from the orchard which may be unavailable in winter from a grocery store. Controlled-atmosphere storage, where they keep the apples that appear in the store midwinter, is expensive. Growers and packers only risk the expense for a few standard varieties which are proven popular sellers. This means mostly red and golden Delicious and Granny Smith.

If you must cook with one of these apples, golden Delicious is the best bet. Buy it as green as you can get it, and it cooks up tender, flavorful, and sweet-tart. If you have a choice of apples in the fall, try such delights as Jonagold, Empire, or Criterion. Sample any varieties locally available until you find ones that have the storage and cooking characteristics you want.

Here are some ways, from the simplest to the most elegant, to serve up your apples.

Apple brown betty

A classic dessert from New England, its simplicity is deceptive. You could grow addicted to this one.

Ingredients (serves 4-6):

2 cups wholegrain bread crumbs
¼ cup butter or 3 Tbsp. oil
6 cups sliced apples
¼ cup honey
¼ tsp. grated nutmeg
2½ Tbsp. fresh lemon juice
½ cup hot water

Preheat oven to 350 degrees and lightly oil a two-liter casserole. In a saucepan, melt the butter or warm the oil. Mix crumbs and butter or oil lightly with fork. Cover bottom of casserole with ⅓ of the crumbs. Spread ½ the apples over the crumbs. In a small cup, mix together the honey, nutmeg, and lemon juice. Drizzle ½ the honey mixture over the apples.

Repeat the layers with another ⅓ of the crumbs, the rest of the apples, and honey mixture. Top with the remaining crumbs and drizzle the hot water over all.

Bake, covered, for 25 minutes. Remove the cover and bake for another 20-25 minutes, until the apples are tender and the crumbs turn golden.

Serve warm with whipped cream or ice cream.

Honey apple crisp

A classic; moist, sweet apples with a crunchy oat topping.

Ingredients (serves 6-8):

6-8 medium apples
2 Tbsp. quick-cooking tapioca
⅓ cup honey
1 Tbsp. lemon juice

Topping ingredients:

¼ cup honey
2 Tbsp. oil
½ tsp. vanilla
1 cup regular rolled oats
¼ cup whole wheat flour
½ cup chopped walnuts

Preheat the oven to 325 degrees. Get out a casserole of approximately two-liter size. Wash, quarter and core the apples, then slice them finely. You should have 6-7 cups of apple (exact amount is not critical).

Sprinkle 1 tablespoon of the tapioca over the bottom of the casserole, add half the apples, and repeat, using the rest of the tapioca and apples. Blend the $\frac{1}{3}$ cup honey and the lemon juice together, and drizzle it over the apples. Cover the casserole with a lid or foil, and bake 35-40 minutes or until the liquid in the apples begins to bubble.

For the topping, warm the honey, oil, and vanilla in a small bowl just enough to blend easily. Beat together, then stir in the oats. Let sit 5 minutes. Add the flour and walnuts, and mix well. When the apples boil, remove the casserole from the oven and crumble the topping over the apples. Bake, uncovered, for an additional 20-25 minutes or until the topping is golden and the juice bubbles all around it. Apple crisp is best served warm.

Apple pandowdy

A classic New England dessert, rich with molasses and spices. Makes one 9" x13" pan.

Sauce ingredients:

6 or 7 large apples
 $\frac{1}{4}$ cup dark molasses
 $\frac{1}{4}$ cup honey
1 tsp. dried orange peel
 $\frac{1}{2}$ tsp. cinnamon

Cake ingredients:

2 cups whole wheat pastry flour
1 teaspoon baking powder
1 teaspoon soda
1 Tablespoon buttermilk powder
 $\frac{1}{2}$ teaspoon cinnamon
 $\frac{1}{4}$ cup oil
 $\frac{1}{4}$ cup honey
1 teaspoon vanilla
2 eggs
1 cup milk

Preheat the oven to 375 degrees F. Get out a 9"x13" non-reactive pan (I like glass). Wash, core, and slice all but two of the apples. Leaving the skins on adds flavor and texture, but you may remove them if you like. You should have about eight cups of sliced apple. In a medium saucepan, combine the molasses, honey, orange peel, and cinnamon. Add the sliced apples and cook over low heat until the apples are very tender and the mixture is the consistency of applesauce.

While the apples are cooking, prepare the cake batter. Sift together the pastry flour, baking powder, soda, buttermilk powder, and cinnamon. In a separate medium bowl, combine the oil, honey, vanilla, eggs, and milk. Set the two mixtures aside while you dice the last two apples and add them

to the cooked apples. Pour the apples into the pan, and smooth over the top.

Now beat the flour mixture into the milk mixture until well blended. Add the dry mixture in 4 portions, beating each time until well blended. Pour quickly over the apples in the pans, spreading as evenly as possible. It is important to work quickly because the cake batter will thicken and puff up as it stands.

Slide the pan into the oven and bake for 30 minutes, or until the cake is golden and the sauce bubbles up around it. Serve warm. This is very good with ice cream or frozen yogurt.

Hazelnut apple-tart

This is very elegant, but really quite easy to prepare. The recipe makes one 10-inch tart:

Ingredients:

3-4 apples (about $1\frac{1}{2}$ lbs.)
 $\frac{1}{4}$ cup oil
 $\frac{1}{4}$ cup honey
2 eggs
1 tsp. vanilla
 $\frac{1}{2}$ cup ground hazelnuts
 $\frac{1}{2}$ cup pastry flour
1 tsp. baking powder

Prepare the tart pastry, and line a 10" tart pan with it. Preheat the oven to 375 degrees.

Peel, core, and slice the apples $\frac{1}{2}$ " thick. Arrange them in an attractive pattern on the pastry. The slices should fill your tart pan level with the top, but not higher.

In a medium bowl, beat together the oil, honey, eggs, and vanilla. Beat in the ground hazelnuts, flour, and baking powder. Drizzle the batter over the apples in the pan, being careful to fill the crevices between the slices. Do not worry about covering the apples completely. The tart is very attractive with apples poking up through the batter.

Bake at 375 degrees for 40-45 minutes, until the apple slices are tender and the batter is golden. Cool 10 minutes before removing the ring from the tart pan. Serve warm or cool.

Note: Use the same measure of whole nuts that you wish to have as ground nuts. You may grind nuts with or without the skins, as you prefer. To remove the skins, toast the nuts 8-10 minutes in your preheated oven, until the skins crack and split. Remove the nuts from the oven and let cool a little before rubbing the skins off. To grind the hazelnuts, place them in a blender or food processor bowl and pulse until they are the texture of meal. Do not worry about a few chunks that may be left. Simply remove them, if they are large. Be careful of going too far or you will have nut butter. Measure your nuts again after grinding. Δ

Make a sidewalk garden bench

By Dana Martin Batory

Last summer I decided my backyard cried out for a garden bench. But not just any bench. A truly unique bench. I never throw anything away and I always haunt the unofficial landfill down the road. So I figured I would incorporate a little bit of this with a little bit of that and come up with something different. As you can see, I believe I succeeded.

Everything used in this project, except the concrete, was salvaged. The treated 4 by 4s and 2 by 4s were leftovers from someone's deck project tossed out at the landfill. Likewise, the bolts, nuts, and washers came from a discarded workbench laying nearby.

And several years ago when so-called urban renewal took the house next door, I removed a number of sandstone sidewalks two-feet wide, four-feet long, and two-inches thick, of which I still had a small stack left.

Of course, this bench can be duplicated using new materials. Any kind of cut stone—or even a concrete slab—could be used as a top. And one is not limited to a symmetrical top. An irregular slab pulled from a marble or granite quarry's waste pile would work as well. Let your imagination go wild.



The completed garden bench

Cutting And Materials List

Two treated 4 by 4s, 46" long.
Two treated 2 by 4s, 20" long
Four 4½" long ¾ by 16 carriage bolts
Four ¾ x 16 nuts
Eight ¾" inside diameter washers
60 pounds fast-setting concrete
One stone slab 48" by 24" by 2"

Construction

I discovered the ideal height for my bench was 18 inches. Subtracting the slab's 2-inch thickness and allowing for 30 inches below ground, my posts needed to be 46" long. Before cutting your posts to length, determine your ideal height and factor in the slab's thickness and your local frost line. I also allowed for a 2-inch overhang on the front and back and 1-inch on each side.

Because the slab protects the nuts and bolts I went with standard plated hardware. Stainless steel hardware could be substituted or even pegs cut from treated lumber.

Cut parts to given dimensions. Lay out and cut joints. The slots in the 4 by 4s were made on a table saw using a tenon cutter and dado blade. The slots in the 2 by 4s were made on a radial arm saw using a dado blade. Lay out and cut 40-degree angles on the 2 by 4s.

Though machinery is quicker and more accurate, all the cuts can be made using hand tools. Assemble dry to check fit, adjusting where necessary. I drilled the slightly offset ¾-inch holes on a drill press as deep as possible and finished them with a brace and bit. Back up the 4 by 4s with a piece of scrap to help prevent splintering. Bolt the parts together.

To make things easier, set one post first. Make sure it is level and plumb. I found a few shovelfuls of dirt tossed into the hole's bottom will hold it in place. Fill the hole about ⅔ full of concrete (about 30 pounds will be needed).

When the cement has hardened, set the other post plumb as a reference point and level using the first as a reference point. Measure from the out-



Bench posts set into place awaiting the seat

side corner to the opposite outside corner to square up. The distances should be the same. After the cement has set fill in the rest of the holes with dirt and tamp it down with a scrap 2 by 4. Center and set the slab in place, the smoothest side down. The slab was lifted and set into place by first resting it on a makeshift litter of two long 2 by 4s. With a person on each end, four of us had no problem moving it around.

The sheer weight of the slab will keep it in place. However, a bead of silicon sealer will help hold it in place and level off any irregularities. It's also a good idea to periodically waterproof the slab and posts. Δ

Enjoy America's sugarplum — the persimmon

By Charles A. Sanders

Persimmons are one of the most common and abundant wild tree fruits in the eastern half of the country. The common persimmon *Diospyros virginiana* is a native American tree common to the lower Midwest and southeastern United States. A lesser known and less common variety, the Texas or black persimmon (*D. texana*), can be found in the southern half to two-thirds of that state. These two types of persimmons are the only ones native to the United States. However, in warmer parts of the world 160 to 200 kinds have been identified.

On ideal sites of rich moist soil, the persimmon tree may reach a height of up to 60 feet and 18 inches in diameter. More commonly, however, the persimmon occupies old-field types of plant succession, growing to 20 feet or so in height. It is generally considered a weed tree (by timber producers, anyway) since it so rarely reaches commercial quality. The persimmon wood is very hard and shock resistant and can produce beautifully grained lumber. When used for its wood, it often finds use as golf club heads, rifle stocks, spindles, shuttles, and some furniture. Due to its hardness, it is somewhat difficult to work with tools.

Persimmons are an important food source for many animal species. Critters from crows to coons and cattle to coyotes all relish the pulpy fruit of the persimmon tree. If you have a pasture with a persimmon tree in it, you have probably noticed your livestock snuffling around under the tree like four-footed vacuum cleaners, sucking up every persimmon to be found on the ground. Deer feed hard on the fruit as well. In fact, the fat spike buck which I put in the freezer last fall was taken as it foraged beneath a persimmon tree.

Furbearers count heavily on persimmons for much of their fall and early winter diet. Raccoons, foxes, opossums, skunks, coyotes, and other furbearers all feed on persimmons whenever they are available. Many a country boy has followed his hound on a crisp fall night to a stand of persimmon trees where they had an old 'possum or raccoon treed among the fruit laden branches. In fact, these two ani-

mals' love for persimmons has been noted in a verse of the old folk song "Boil 'dat Cabbage Down":

"'Possum up a 'simmon tree,
And a raccoon on the ground.
Raccoon said, 'You son of a gun,
'Shake me some 'simmons down'."

Many species of birds feed on persimmons and will peck away at the fruit, either as it ripens on the tree, after it has fallen to the ground, or during the late winter when the last

frozen lumps of sweetness still cling to the branches. Turkeys scratch among the fallen leaves to find them. Cedar waxwings, catbirds, and mockingbirds bounce about in the branches, tugging and pecking at the ripened fruits.

Humans also find the persimmon a valuable and useful source of food. Everything from breads to puddings and even wine can be prepared from the fleshy fruit. The gathering of persimmons in the fall has long been a tradition in many parts of the coun-

try where the tree grows. In fact, each fall, the small southern Indiana town of Mitchell boasts its annual Persimmon Festival. Held each year during the last full week of September, the festival is complete with persimmon cookery and treats, a huge arts and crafts fair, Persimmon Parade, and Persimmon Festival Queen.

Some of you who remember your first taste of persimmons may remember them as terribly astringent and puckery fruits given to you by an older brother, sister, or other loving relative ("Here, try one. You'll love them!"). Biting into an unripe persimmon gives the sensation of having your mouth lined with heavy flannel, but it's a lesson usually needed only once. The reaction comes from the high levels of tannin which are present in unripe persimmons, and results from the precipitation of proteins which are present on the tongue by the tannin.

Many of us in the areas where persimmons commonly grow will harvest, process, and freeze or can persimmon pulp in sufficient quantities to ensure an occasional persimmon pudding or bread throughout the year.

When gathering persimmons for human use, I pick up all the ones which have fallen to the ground and often give the



Wild persimmons

tree a good shake as well. You might want to consider laying down a sheet of plastic to catch any fruit shaken down. Anything that falls is generally ripe enough to use. One sure rule of ripeness is that if the fruit is squishy and gooeey, then it is at the peak of ripeness.

To process your persimmons, you must first sort through them and remove any small twigs and any leafy residue from the fruit. Also remove the dried leaflet-like calyx from the base of each fruit if present. Old-timers, and many not-so-old-timers, usually just mash the pulpy fruits through a colander, discard the seeds and use or process the remaining pulp. Some folks use a Foley food mill with good results. For those of you with the crank-type tomato squeezers, the use of the pumpkin screen and standard spiral should work with persimmons as well. All of the above methods serve the same purpose, to separate the sweet pulp from the seeds.

By far, the most widely accepted use of persimmons (and, in my opinion, far and away the best use of the fruit) is for producing pans of freshly baked, sweet and luscious persimmon pudding. I can absolutely think of no other sweet treat which evokes the memories or stimulates the taste buds as does a gooeey, dark persimmon pudding, served with a big dollop of whipped cream on top. My grandmother could make a persimmon pudding which was second to none. As a boy I relished the trips to Grandma's house during persimmon season. I could nearly always count on a serving of her persimmon pudding being set down in front of me. I would like to share her recipe for the dessert.

Grandma's persimmon pudding

2 cups persimmon pulp
1 cup sugar
2 eggs
2 cups sweet milk
1/2 cup margarine
2 cups flour
2 tsp. baking powder
1/2 tsp. soda
1 tsp. salt
1 tsp. cinnamon
1/2 tsp. nutmeg
2 tsp. vanilla

Mix the sugar, pulp and eggs. Add the remaining ingredients and mix well. Bake in slow oven (350 degrees F.) until done. Simple directions for an exquisite treat.

Persimmon bread is another traditional use of these sweet fruits. Persimmon bread is delightful to serve to guests, especially during the holidays, and also makes a memorable gift. We sometimes bake the bread in a coffee can to give the finished loaf a unique appearance.

Persimmon bread

1 cup persimmon pulp
2 cups flour
1/2 tsp. baking soda
1/2 tsp. salt
2 tsp. baking powder
1 tsp. cinnamon
1/2 tsp. nutmeg
1/2 cup milk
1 cup sugar
2 eggs
1/4 cup butter or margarine
1 cup chopped walnuts, if you wish

Sift together the dry ingredients. Mix together the persimmon pulp, milk, eggs, and sugar. Add the flour mixture and the margarine. Mix until well blended. Stir in the chopped nuts. Pour the batter into a well-greased 9"x5"x3" loaf pan and bake at 350 degrees for 45 minutes.

Another delightful treat which can be made from persimmons is persimmon cookies. These tasty and chewy drop cookies are a real treat and are easily made.

Persimmon cookies

1 cup persimmon pulp
3/4 cup shortening
1 cup sugar
1 egg
1 tsp. baking soda
2 cups flour
1 tsp. baking powder
dash of salt
1 Tbsp. vanilla
1 tsp. cinnamon
3/4 cup chopped nuts
3/4 cup coconut
3/4 cup raisins (optional)

Simply mix all the ingredients together well and drop onto a cookie sheet by the spoonful. Bake in a 350 degree oven for 15 to 20 minutes. These are even better on the second day... if there are any left.

For a special treat, try a batch of persimmon candy. This creamy treat is sure to be enjoyed by all who try it.

Persimmon candy

2 1/2 Tbsp. persimmon pulp
2 cups sugar
1 cup half-and-half milk

1 Tbsp. dark corn syrup
1/8 tsp. salt
1 tsp. butter

Mix the sugar, syrup, half-and-half, and salt and allow to set for about 20 minutes to allow all the sugar to dissolve. Bring the mixture quickly to a boil over high heat. Heat to 230 degrees F on a candy thermometer or to the soft ball stage. Remove from the heat and add the butter and persimmon pulp. Return to the heat and boil, stirring constantly until reaching the soft ball stage, again. Remove again from the heat and set it aside until partially set. Beat the mixture until it begins to harden and pour into a buttered pan.

If, after indulging in pudding, bread, candy, and cookies, you still have a surplus of sugarplums, you may wish to try your hand at making a tasty homemade wine. To do so, follow the following simple recipe:

Persimmon wine

5 qts. persimmon pulp
5 qts. water
1 1/2 lb. sugar
1 pkg. yeast

Mix the persimmon pulp and water. Cover and allow to set for 48 hours. Strain the liquid and heat to boiling, stirring occasionally, then shut off heat. Add the sugar and stir in until it is dissolved. Allow it to cool then add the yeast. Put into the fermenting vessel and attach an air lock to allow the gas to escape but prevent air from entering. Allow to ferment for 2 to 3 weeks or until fermentation stops. Siphon off into clean jugs or bottles.

For those not fortunate enough to live where persimmons grow, I am including a source of canned persimmon pulp who can ship quantities of this unique treat anywhere in the United States. If you would like to try some real Hoosier persimmon, try ordering some canned persimmon pulp from Dymple's Delight Canned Persimmons, Rt. 4, Box 53, Mitchell, IN 47446, 812-849-3487. Dymple Green has been filling orders for the gourmet treat for over 25 years.

The minimum order of two cans costs \$9.50. Each additional can shipped to the same address is \$4.25. A 12 can case of pulp is available for \$48.50. All orders include UPS shipping (please add \$1.50 for orders west of the Mississippi River). No orders can be shipped to Canada. Each can contains 2 cups of pulp and 2 cups of sugar. No additional sugar is necessary for the persimmon pudding recipe contained on the label.

However you may choose to enjoy these native sugarplums, I know that once you have tried persimmons, the 'possums and 'coons will be in for some competition come harvest time. Δ

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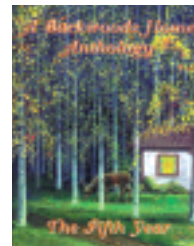
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Save your harvest leftovers with a vegetable stew mix

By Anita Evangelista

I've just come in with a basket-load of end-of-the-garden vegetables—a couple ears of corn, 6 tomatoes that had hidden in the vines, 22 potatoes, a handful of celery stalks, a few aging green beans, some oversized onions and undersized turnips—you get the idea. There's hardly enough of any one thing to bother getting out the dryer or the canner for a batch, but I can't stand letting this hard work go to waste.

The answer to this typical harvest-end dilemma is that ole standby: vegetable stew mix. The basic idea is to preserve all of these wonderful home-grown goodies with the greatest efficiency and for the best flavor and utility. This particular harvest-end blend can be varied to suit your own garden and tastes, and can be served when you need a hot, nutritious meal that can be fixed (literally) in five minutes on those cold winter evenings which lie ahead.

You can either pressure can, freeze, or dry your tasty soup-to-be, but the basic idea is to mix together whatever you have. There are several ways to do it.

Canning

Prepare your canning jars, either quarts or pints, by cleaning and checking for nicks on the rim. Have your jar lids handy and place them in very hot water until ready for use. This mix must be pressure canned—not done in a water-bath canner—so prepare your canner according to manufacturer's directions.

Now go ahead and peel your peelables (potatoes, turnips, carrots, onions, tomatoes, etc.) and cut them into chunks of about the same size so

they cook evenly. Now chop up all the extras (celery, beans, peppers, cabbage, etc.) aiming for roughly the same sizes. Cut corn kernels off of cobs. For a typical canner-load, you'll need seven quarts of chopped vegetables, or half as much if you're using pint jars. Mix all the goodies together.

Load the veggies into hot clean jars within one inch of the top, add a pinch of thyme, 1/4 tsp. of salt per quart, and a couple of whole peppercorns or dash



of pepper, if you wish. Now, fill each jar with boiling water to an inch from the top. Wipe the rims and apply lids. Tighten down bands by hand.

Ready your pressure canner according to manufacturer's directions, or put two inches of warm water in the bottom of the canner. Put the jars carefully into the canner, attach the lid, and turn on the heat. When the canner has expelled steam for two minutes, finish sealing and begin to watch the pressure. Time the canning process from the point the canner reaches 10 pounds pressure or 240 degrees F.

How long should you pressure can your personal veggie stew? The rule of thumb is this: can for the longest length of time recommended for individual ingredients. For instance, if you have potatoes, corn, and carrots as your mix, Table 1 indicates that the corn requires the longest time at 85 minutes. The whole process, then, should take 85 minutes. (Keep in mind

Table 1
Recommended Canning Times
at 10-Pounds (240 degrees)

<u>Vegetable</u>	<u>Minutes</u>
Asparagus	30
Green beans	25
Lima or butter beans	50
Beets	35
Broccoli/cauliflower	
(flavor gets stronger)	40
Carrots	30
Corn kernel	85
Greens	
(boil for 3 min first)	90
Okra	40
Field peas	40
Green peas	40
Green peppers	45
Potatoes	95
Sweet potatoes	90
Rutabagas	35
Spinach	
(boil for 3 min first)	90
Summer squash	40
Tomatoes	25
Turnips	35

that some of the other ingredients will be pretty soft after all that time under pressure.)

Note: You can also add up to four pounds of chunked, cooked, or seared meat to this mix (for a total of seven quarts of ingredients), if you'd prefer a more hearty stew. If you do, pressure can for a total of 95 minutes, no matter what veggies are included.

When canning time is up, turn off the heat and let the canner cool until it can be touched. Open the petcock and let it cool a short time longer. Remove the lid and carefully take the very hot jars out and set on a wood surface or on folded towels (cold tiles will crack the jars). When cool, check the lid seals and mark the date on the jar tops. Remove ring bands and store.

Freezing

The key to successfully freezing garden-end vegetables is to carefully blanch individual kinds of vegetables for the appropriate length of time. Blanching, the act of boiling for a spe-

cific period, deactivates the enzymes in the vegetables that promote “aging” and spoilage, so they keep better in the freezer. Not all vegetables need to be blanched, though.

Just as with pressure canning, peel all the peelables and chop everything into equal-sized pieces. Prepare a large pot, preferably a gallon-sized one, by filling it with water and bringing to a boil. Blanching vegetables can be placed in a wire basket and lowered into the water or put in and removed using a slotted spoon. After removing veggies from the blanching water, they should be immediately placed into very cold water (ice water is best) to stop the cooking process.

Blanching

Vegetables which don’t need to be blanched are those usually considered “seasoning,” such as green onions, chopped hot peppers, and herbs. Tomatoes don’t freeze very well; they tend to become mushy. They can be frozen whole, though. When you wish to use them, plunge frozen tomatoes briefly into hot water and slip the skins off. Chop or add whole to your stew. For the rest, refer to the guidelines in Table 2.

After blanching, mix all your garden-ends together, pack in freezer containers (jars, plastic boxes, plastic freezer bags, etc.), and put into the deep freeze. Separate all the packages by about an inch so that cooling takes place quickly. The following day, you can stack everything together to conserve space.

To use this “almost-instant stew,” empty the still-frozen veggie mix into a pan. Add enough water, broth, tomato sauce, or water-plus-bouillon-cubes to completely cover the vegetables. Bring to a boil and heat for three to five minutes. It’s ready!

If you like, you can add chopped cooked meats, cooked rice or pasta, or cooked barley to your final mix—an excellent use for small amounts of leftovers.

Table 2 Blanching times for vegetables. Begin timing from when the water boils after adding the vegetables.	
<u>Vegetable</u>	<u>Minutes</u>
Asparagus	3
Lima beans	3
Green beans	3
Soy beans (in pods)	5
Beets	
(until tender)	7-25
Broccoli/cauliflower	3
Brussels sprouts, large	5
Cabbage, shredded	1½
Cabbage, wedges	3
Corn kernels	6
Eggplant	4
Greens	2-3
Kohlrabi	3
Mushrooms	
(they will darken)	3-4
Okra	3-5
Onions	3-7
Parsnips	3
Peas, field	2
Peas, green	2
Peas, snow	
or sugar snap	2
Potatoes	3-5
Winter squash until soft, may be pureed	
Summer squash	3
Turnips	3

Drying

Dried garden-end stew has the advantage of requiring much less storage space than either canned or frozen goods. It has the disadvantage of taking longer to prepare for storage and longer to prepare for the table. However, there are some indications that dried vegetables retain more nutrition than canned or frozen goods.

Vegetables being prepared for the drier may need to be blanched—see Table 2 for frozen foods. Tomatoes don’t need to be blanched, but they should be peeled and thin-sliced. Green onions, chives, herbs, and hot peppers don’t need blanching. Everything peelable should be peeled, and the best drying takes place when

you keep your veggies in very uniform sizes and shapes.

You can use an electric dryer, a solar version, or even your regular oven (set on it’s lowest temperature, around 150 degrees). Follow manufacturer’s directions or dry your vegetables until they are crisp or brittle. Test by removing a few pieces from the drier and cooling for 15 minutes, then feel for crispness or brittleness. Individual types of vegetables may take longer than others, so it’s best to dry different vegetables separately or on separate shelves. Most will take from 3 to 12 hours to fully dehydrate. You have to keep a close eye on this process, too.

When everything is dry, you can either package separately or mix it all together. If you are mixing your vegetables, you may wish to add two tablespoons of bouillon powder to each quart of dried vegetables, or some “quick” rice or barley, or a handful of dry pasta to each jar. This gives a more rounded stew mix when you use it. If you’d like, you can also add a cup of textured vegetable protein (TVP) to each quart jar—this adds a meaty-quality to your finished stew. TVP is made from soybeans and can be found in health-food stores. It even comes in varieties of chicken or beef flavors.

For the longest storage time, place your vegetable mix into jars with tight-fitting lids and keep in a dark, cool place (a cupboard is fine).

To prepare dried stew, place your mix into a pan and cover with an equal amount of boiling water. Let sit covered until the vegetables have rehydrated—this may take 15 minutes to 3 hours, though typically 30 minutes is an average time. Add again the same amount of boiling liquid (milk or broth are nice), heat through, and it’s done.

What better ways could there be to make sure all those garden-ends don’t go to waste than to warm and nourish you and your family during the cold winter months? Δ

Where I live

By Annie Duffy

Following in the footsteps of the Mormon pioneers

Not often do I go on camping trips, so when some of my Mormon friends asked me to come with them on a three-day trip to reenact a bit of Mormon history, I accepted eagerly. The trip was sponsored by the Mormon Church, and, although I'm not a mem-

ber of the Church, I am invited to many of their activities.

We were going to participate in the sesquicentennial Mormon trail reenactment. We would bus to central Wyoming and visit one of the most sacred Mormon landmarks—Martin's cove. Along the way, we would walk about 14 miles, and push and pull handcarts in the footsteps of Mormon Pioneers 150 years before us. We were formed into handcart "families,"

consisting of adults and kids. All of the families made up our handcart party, which is similar to a wagon train, except that the handcarts are pulled by people rather than oxen.

We would also visit sites such as Independence Rock and Devil's Gate.

We were required to wear traditional clothing (excluding shoes).

Girls wore long dresses and bonnets, while guys wore long sleeved button-front shirts, long pants, and hats (not baseball caps).

Most Mormon pioneers used handcarts similar to the one above because Brigham Young, the second president of the Mormon Church, determined that they would be less expensive and reach the Salt Lake Valley quicker than wagons. Normally each pioneer party would have at least one wagon, but it was usually used to haul sup-



Tired trekkers dip their feet in the cool Sweetwater River.

Behind is Devil's Gate.

plies. Only very young children, the sick, and the injured were allowed to ride in the wagons or handcarts. Everyone else had to walk the entire way—a trip, for some, that was more than a thousand miles.

Day one

We met at the church at five o'clock on a Monday morning, but didn't leave until after six. It took about eight hours to get to our destination—the Sun Ranch Visitor Center, about 60 miles from Casper, Wyoming. The visitor center is an old ranch that was bought by the Mormon Church and dedicated to pioneers of the ill fated Martin and Willie handcart parties.

In 1856 these two parties left too late in the year to reach the Salt Lake Valley before winter, and they were both caught in an early blizzard near



This picture, taken from near the top of Independence Rock, looks down on the girls' camp. More than 300 people took part in the reenactment.



In the lower left corner is our “family,” trekking toward Sun Ranch, a historic site dedicated to the Martin and Willie handcart companies. As many as 145 of the 576 people in the Martin handcart company and 67 of the 404 Willie people froze or starved to death while trying to reach Zion.

the Sun Ranch. More than 200 of them froze or starved to death.

As we walked through the Visitor Center, we saw pictures and read plaques about the Martin and Willie parties and others who made the journey to Zion (the Salt Lake Valley). A display of the personal items each individual of the party was allowed to bring with them showed it was hardly enough to fill a paper grocery sack. Included were clothes, a journal, the Bible, the Book of Mormon, a small wooden box for valuables, and a few other small things.

After the Visitor Center, we loaded our gear onto our handcart and pushed it to East Gate, about 1½ miles away. Along the way we sang old pioneer songs, changing the words and adding our own verses, such as:

*For some must pull and some must-
push,
All us girls will kick your tush,
Cause all you boys are really slow,
So we haven’t reached the valley-o.*

We unloaded our carts at East Gate and were picked up by a bus that took us to Independence Rock, 55 miles southwest of Casper, Wyoming. When pioneers reached the rock, their perceived midpoint, they celebrated Independence day, no matter the date.

We set up camp on the northeast side of the rock and started to climb it, searching for a cave that was somewhere near the base. When we found

it, we crawled into it and read the names and dates of the pioneers who had sheltered there 150 years before.

After a particularly well done Dutch oven supper, we gathered around the only campfire. Music from a guitar, fiddle, and harmonica started after dark, close to 10 o’clock, and some of us began to dance. We listened, sang, and danced. One of the songs we danced to was the timeless Virginia Reel, doing our best to remember all of the steps and choreographing some of our own steps. An “a capella” group of local high school students called the Monotones also preformed a few songs for us. It was after midnight by the time we went to bed. Before we fell asleep, Taps was played.

Day two

Since there had been rumors that Reveille would be played in the morning, we were disappointed when we never heard it. We packed up our tent and loaded our stuff.

First there was a devotional, consisting of prayer, spiritual devotion, and song, at the top of Independence Rock, then we were bused back to East Gate, where we reloaded our handcart.

After we parked our handcart in a meadow near the Visitor Center, we



Posing at the top of Independence Rock, Wyoming, are, from left, Annie Duffy, Lindi Brown, Janice Jensen, Julie Suisse, Shalise Adams, and Katie Jensen.

walked to Devil's Gate. Devil's Gate (shown on page 35) is a cleft in the east end of the Sweetwater Rocks, six miles southwest of Independence Rock where Sweetwater River runs through. While we were at Devil's Gate, several of us stripped off our shoes and socks and dipped our feet. The water was cold, but it felt good after the walk.

Once we returned to our handcart, we ate lunch and waited out a short hailstorm. We started towards the most important and sacred stop along our trail—Martin's Cove, where some of the 145 people of the Martin handcart party who either froze or starved to death met their fate. Located two miles west of Devil's Gate, Martin's Cove is a small inlet in the Sweetwater Rocks that sheltered many of the 576 pioneers of the Martin handcart party from the killer blizzard. Led by Captain Edward Martin, it was the last handcart expedition to leave Nauvoo, Illinois, in 1856.

We pushed into camp as the wind started to blow, and we had to wait close to an hour before we could start



Our "family" pulls a handcart, re-created in the likeness of those used in the mid to late 1800s. They were used by Mormon pioneers to move their possessions from Nauvoo, Illinois to the Salt Lake Valley. Only the young, sick, and injured were allowed to ride in the handcarts. Everyone else walked the entire way. From the left is Annie Duffy, Roger Isaacson, Lindi Brown, Justin Wheeler, Julie Suisse, Roxanne Jackman, Richard Finwall, Janice Jensen, and Mike Isaacson.

supper while another hailstorm pelted our tent.

It was exciting, both for the adventure and for the sense of history we were reliving. I read part of the *Nauvoo Neighbor*, an Illinois paper

from those old days, which suggested the list below for each wagon that accompanied the handcart parties.

What a trip!

(Photos for this article were taken by Roxanne and Gordon Jackman of Hyde Park, UT.) Δ

Bill of Particulars For the Emigrants Leaving this Government Next Spring

Each family consisting of five persons, to be provided with:	1 lb. tea	5 lbs. saleratus	1 good seine and hook for each company
1 good strong wagon, well covered with a light box	5 lbs. coffee	10 lbs. dried apples	From 25 to 100 lbs. of farming and mechanical tools
2 or 3 good yoke of oxen between the age of 4 and 10 years.	100 lbs. sugar	½ bushel of beans	Clothing and bedding to each family not to exceed 500 pounds
2 or more milk cows	1 lb. cayenne pepper	A few lbs. of dried beef or bacon	Ten extra teams for each company of 100 families
1 or more good beeves	2 lbs. black pepper	5 lbs. dried peaches	N.B. In addition to the above list, horse and mule teams, can be used as well as oxen. Many items of comfort and convenience will suggest themselves to a wise and provident people, and can be laid in in season; but none should start without filling the original bill.
3 sheep if they can be obtained	½ lb. mustard	20 lbs. dried pumpkin	
1000 lbs. of flour or other bread or bread stuffs in good sacks	10 lbs. rice for each family	25 lb. seed grain	
1 good musket or rifle to each male over the age of 12 years	1 lb. cinnamon	1 gal. alcohol	
1 lb. powder	½ lb. cloves	20 lbs. of soap each family	
4 lbs. lead	Cooking utensils to consist of a bake kettle, frying pan, coffee pot, and tea kettle	ly	
	Tin cups, plates, knives, forks, spoons, and pans as few as will do	4 or 5 fish hooks and line	
	A good tent and furniture to each 2 families	15 lbs. iron and steel	
	1 doz. nutmegs	A few lbs. of wrought nails	
	25 lbs. salt	One or more sets of saw or grist mill irons to company of 100 families	
		2 sets of pulley blocks and ropes to each company for crossing rivers	

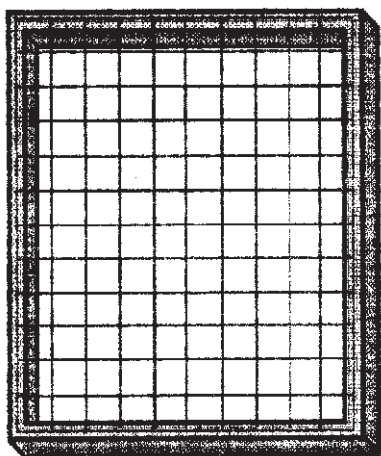
Making paper at home is a fascinating process

By Carl Bussjaeger

Why would anyone want to bother with making their own paper at home? Well, for me it was more a matter of “Why not?” I am convinced that anything someone else can do, I can do. And I almost immediately ran into a problem.

On the face of it, making paper should be easy enough . . . people have been doing it for centuries. All you really need is a source of tiny cellulose fibers that you can press into a mat—rather like felting. Most commercial paper production is based upon the use of wood pulp, which being cellulose, is a great source of tiny cellulose fibers.

However, wood also contains a great deal of *lignin*. This is the material in wood that gives it its hardness.



The mold (mesh not to scale)

Unfortunately, it prevents the individual cellulose fibers in the wood from separating and matting properly, so it has to be eliminated. Anyone who has had the olfactory misfortune to live near a paper mill has an idea of how the professionals deal with lignin: the

wood pulp is cooked at high temperatures in a caustic solution.

This does make for good paper at a good price, but it was a far cry from what I wanted to mess with at home. So I put off my leap into a new endeavor until I could give it a bit more thought. I went out to mow the grass. And it hit me immediately. Hmm. Grass? Well, I had to cut it regularly anyway. It *is* cellulose. And lignin certainly isn't an issue. So I went for it.

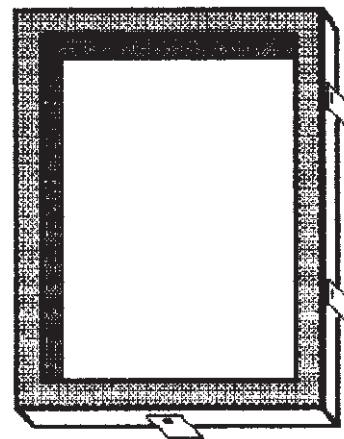
Materials

Darn near anything can work, if it is fibrous. I have managed some surprisingly nice paper using general lawn clippings. This was mostly Bermuda, with the odd bit of crab and rye grass. (I don't worry about keeping a manicured, competition lawn.) I have even had a bit of luck with kudzu leaves. (I'm a Southern boy; I had to find *something* to do with the stuff). And recently I started experimenting with the seed puffs from cottonwood trees.

And naturally enough, you can also recycle paper this way. It is definitely quick: processed paper breaks down into its component fibers much faster than even grass clippings. Old rags are another good fiber source. Cotton and linen are best; I avoid the man-made polymer fibers such as nylon and polyester. An exception to this is another source: clothes dryer lint. Yep, I've used that, too. It works. So with a little creativity, material is not a problem.

Now you need to gather your tools. This is likely going to be a little easier than you thought, as well. Most of what you need, you have. Here's a basic starter list:

- Scissors
- Pot
- Jars



The deckle

- Colander
- Blender or hammer and bowl
- Mold and deckle
- Pulp vat
- Cloths
- Press
- Press boards
- Iron
- Drying rack

The scissors are used to cut up your material into manageable bits. The pot is used to cook the clippings to break down the fibers; eight quarts should be fine for most projects. The jars hold the processed pulp. The colander is used to drain and wash the cooked material.

After you have cooked the grass down to mush, you still have to dissociate it into free fibers. There are two ways to do this. The old traditional way was to place the mush in a sturdy bowl of some sort (a hollowed tree stump might be used) and pound it with a large wooden mallet. This is as messy as it sounds.

The easier (and neater) way is to use a blender. Set to “liquefy,” a blender does a wonderful job of processing paper pulp.

Theoretically, you could also simply keep cutting up the material with the scissors. Don't. It takes just short of forever, and yields low quality paper.

The mold and deckle are the heart of the paper making operation. And you probably won't have them lying around the house. Fortunately, they are pretty simple to put together.

The mold

The mold is a screened frame which you dip into the pulp and lift up to form a sheet of matted pulp, with the water draining off through the screen. Dried and pressed, the pulp becomes the paper.

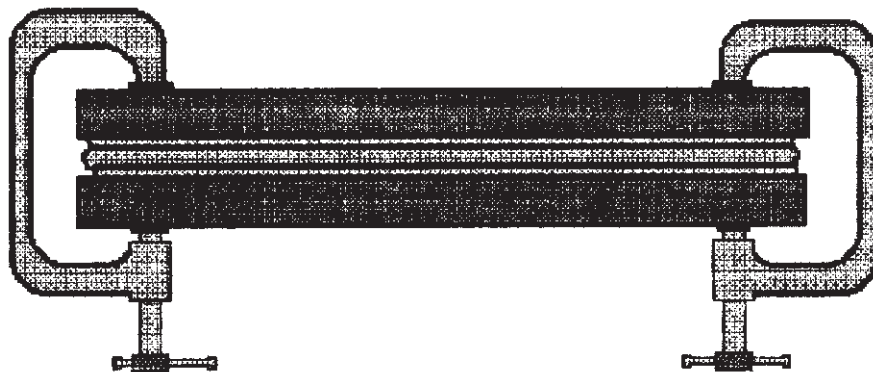
The mold that I use is a 16½ inch by 12½ inch frame made of 1 x 1 inch pine. The size of your mold is relatively unimportant. The factors that you base your mold on are the maximum paper size you want to make, and ease of handling.

The mold is fastened together at the corners with four wood screws. I have a doubled layer of ordinary fiberglass mesh (the same stuff you use in the windows) stretched *tight* over the frame and stapled down all around. The mesh must be tight so that it will not sag under the weight of the wet pulp. If it does, the pulp will pool in the middle and make an uneven sheet of paper.

The deckle

"Deckle" is an odd word, and I have no idea where it originated. The deckle is a second frame that is placed atop the mold to form a dam around the edge of the mold. The advantage of this is that as you raise your mold out of the pulp, the water does not run off the sides, and the pulp is trapped on the screen. The mold can be used without a deckle, but it's easier to make consistent, even paper with it.

My deckle has the same basic dimensions as the mold, so that it fits flush on top. But I used one-inch by half-inch pine instead. This gives me a



C-clamp press

half-inch "wall" around my mold. Again, it is assembled with four wood screws at the corners.

Also, there are six wooden tabs attached to the outside of the frame; one at either short end, and two on each long side. These tabs fit against the mold frame and prevent the deckle from sliding around during handling.

Probably I should seal the mold and deckle wood with a waterproof varnish, but I've been using these for a couple of years now with no problems, so I've never gotten around to it.

The pulp vat

The next tool you will need is a pulp vat. This holds your pulp solution, into which you dip the mold and deckle. It should be at least six inches deep, and large enough to dip your mold into. For my mold, I found that Rubbermaid makes a plastic storage box that is almost the perfect size. It is also rather handy for storing my paper-making gear when I have finished.

The press

Once you have a mold full of wet pulp, you need to turn it into paper. You simply transfer the wet pulp (called *waterleaf*) onto a cloth, place another cloth over it, and sandwich the cloth and waterleaf between two sturdy boards. This sandwich is referred to as a *post*. (I would just call it a sandwich, but someone else got to

name it first.) Then you press it to compress the fibers together, and squeeze out the water.

It does not really matter how you press it, but there are two things to remember: First, the greater the pressure you apply, the thinner yet stronger the sheet will be. Second, leaving the sheet under pressure for a while seems to help. The ideal solution for this would be a screw-type press, either a bookbinder's press or a cider press. I have neither, so I improvise.

I have pressed my waterleaves on an arbor press, which gives lots of pressure, but I had no good way to maintain it other than to keep holding down the lever. A counter-weight to hang on the end of the handle would have been handy.

I have also stacked bricks and a small 55-pound anvil on top of the post. This was less than satisfactory. I just did not have enough bricks to give the pounds per square inch that I needed.

Once, I parked the front wheel of my truck on the post. It worked, but it confirmed my neighbors' fears that I was nuts.

What I finally ended up with was an improvised screw press. Very simply, I used four large C-clamps to press the boards. It gives me all the pressure I need, I can leave it there forever, and my press fits into my storage box. Good enough.

So let's make some paper.

The process

Step 1: Chopping

Here is where you start with the scissors. Cut your material up into small pieces, no larger than an inch in any dimension. Smaller is better. Dump the chopped material into your cooking pot. As you chop the material, sort through it and discard any detritus—bits of bark, pine needles, anything you won't want in your sheet of paper.

Step 2: Boiling

Now you cook your material into a mush. The heat and water cause the fibers in the material to dissociate and separate from each other. The end result is an "overcooked" mass, similar to what some folks refer to as "Southern-style" vegetables.

The boiling time can be reduced by cooking with a caustic solution. Two or three tablespoons of lye can be placed in the pot before the vegetable matter and water are added. Frankly, I have never needed lye. *Note: If you do use a caustic solution, do not use an aluminum pot. Use a well enameled pot, or preferably stainless steel.*

Your pot should be about two-thirds full of fiber material when it is pressed down. Add water to cover the material and bring it to a boil. Let it simmer for two to three hours, or until it is reduced to mush. Add water periodically to prevent it from boiling dry.

Step 3: Washing

The extended cooking should have turned the water into a nice dark tea. Dump the pot into your colander and let it drain. Then wash the mush by pouring cool water over it until the runoff is clear.

Step 4: Second boiling

This isn't absolutely necessary, but it does break down the mass a little more and helps cook out the undesired color. This is a short simmer of 30 to 45 minutes, with no caustic solution.

Step 5: Second washing

Proceed in the same fashion as before.

Step 6: Bleaching

This is another optional step. If you are making a writing paper, you may want it as white as possible. If so, dump the mush into the pot again, cover with water and add a tablespoon or two of common bleach. Stir well, and let it sit for an hour. When the mush has lightened, dump it into the colander again and wash it once more.

Step 7: Pulping

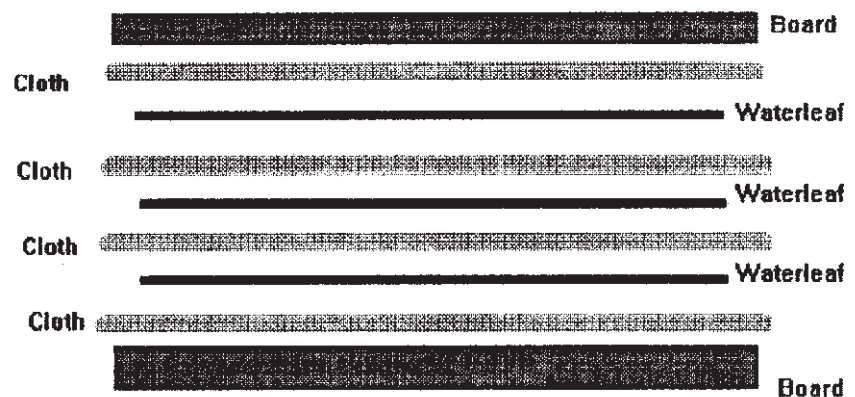
If you are truly brave, it's now time for the mallet and bowl. If you are more like me, it is time for the blender. To reduce the mush to a pulp suitable for paper, the mass has to be ground into tiny independent fibers. Set up your blender with the carafe about half full of water and add a *small* handful of mush. Don't start with too much at first, or you may overload the blender's motor. Work your way up to the blender's highest setting. The mush should be reduced to a smooth, creamy, even texture. Stop and add more mush occasionally. When you have a carafe full of finished pulp, transfer it to a jar. Continue reducing the mush to pulp in this fashion. Starting with the pot full of material, you should end up with four or five quart jars full of pulp.

Sizing (optional)

Virtually all the paper you use from day to day has been *sized*. That is, some additional substance has been added to the pulp to improve the adherence between fibers, to prevent ink "bleeding" through the paper, or to generally strengthen the sheet. In commercial "slick" paper, kaolin clay is used to size the paper.

For myself, I have found that two common kitchen items do the sizing I need. Corn starch is my preferred size. It works as an internal glue for the paper; when pressed out, the sheets stay compressed and smooth. The easiest time to size the pulp with corn starch is during blending. Just add it to the carafe when the mush has become a good pulp and blend it in for a minute.

How much should be used? That varies a lot. For pulp based solely on grass clippings, one tablespoon per quart seems to be adequate. In my experiments with cottonwood puffs, I've needed quite a bit more to get the pressed sheets to mat properly. Your best bet is to try different amounts. The first time around, use no sizing. Make a test sheet and see how close it is to what you want. If necessary, try again with corn starch. Don't worry about wasting the pulp. Your home-made paper can be recycled just as easily as any other paper. Just keep



An assembled "post"

increasing the starch content until it suits you.

The second sizing agent I use is unflavored gelatin. Since it is applied to a finished sheet of paper, I will discuss it later.

The pulping stage is also the point at which you can add colors to your paper. Fabric dyes and water-based paints work well.

Now on with the papermaking process.

Step 8: Forming

Pour two quarts of your pulp into the vat. Add enough additional water that your mold and deckle can be completely submerged. Stir the water well, to distribute the pulp evenly. Some folks use an egg beater or hand mixer for this.

Before the pulp particles can settle to the bottom of the vat, slide your assembled mold and deckle into the water with a scooping motion, and raise the mold just to the surface. The pulp on the mold should still be just awash. Very gently swish the pulp around on the mold. (I'm told the pros call this "throwing off the wave.") This spreads the pulp evenly, and helps the fibers interlock. If the pulp seems too thin, mix more of your concentrated pulp into the vat. Keep an eye on this as you form additional sheets.

Next, lift the mold straight up out of the vat. Tip the mold at an angle and let the water drain off until it drips. Carefully remove the deckle. Turn the mold upside down onto a waiting spread cloth. Gently press down on the screen to push the waterleaf against the cloth. Run your hand over the entire area. Gently, now. Pressure is not needed yet.

Lift one end of the mold carefully. The waterleaf should peel off the mesh and remain on the cloth. (The fancy word for this process is *couching*.) Cover the waterleaf with a second cloth. At this point you may either sandwich your waterleaf between the pressing boards, or dip a second

waterleaf from the vat and couch that on top of the first. How many waterleaves you may assemble in a post depends on how good your press is. Unless you are lucky enough to own a nice screw press, five leaves is probably going to be your limit.

Step 9: Pressing

Pressing is pretty basic. Place your post in the press, and apply pressure. Water will start running out the sides of the post. When the water stops running, let the post sit for a minute. Then apply more pressure; a little more water should trickle out. At that point, I let the press maintain pressure for about fifteen minutes (or more time if the pressure is lower; if you only have a few bricks piled on the post, let it sit for an hour).

Step 10: Drying

When you have finished pressing the post, remove it from the press and disassemble the stack. Lift the top board and set it to the side. Carefully peel back the top cloth to expose the sheet of paper beneath. Grasp the cloth *beneath* that sheet and peel it free from the sheet below. Turn the cloth and sheet upside down on a clean, flat surface and peel the cloth away, leaving the paper. (A slotted drying rack is an option here; I generally use cake cooling racks.) Repeat this with any other sheets of paper. Leave the wet sheets to dry. You speed the drying by placing the sheets near a source of low heat. Placing them in an oven set to Warm works well.

Sizing the sheet (optional)

When the sheet is completely dry, you may wish to size it with unflavored gelatin. This will keep inks from "bleeding" through your paper. If you do want to try this, here's how:

Boil a pint of water and dissolve one quarter-ounce packet of unflavored gelatin into it. Pour the mix into a shallow pan large enough to hold a sheet of paper. Hold your dry sheet of paper by one end and quickly run it

through the gelatin solution. Hold it up to let the damp paper cool, then grasp the sheet by the other end and run the dry end through the sizing solution. Set the damp sheet on a rack to dry.

I have been told that the proper way to size paper is to set the sheet into the solution and allow it to soak, rather than using the quick dip. Every time I have tried that technique, my paper has started to come apart. I'll stick to what works for me.

Ironing (if needed)

Unless you're a lot luckier than I am, your paper has crinkled or curled slightly as it dried. Some folks like that appearance: they think it is "rustic." But if you are planning to write on this stuff, you will more than likely want it a bit smoother. Easily done: iron the sheet. I run over it quickly on a steam setting, then a second time dry. It seems to work reasonably well.

Congratulations. You have made paper. Now what do you do with it?

Now what?

While making the paper is fun in itself, it does have uses. I have used it as a rather distinctive stationery, almost guaranteed to catch someone's eye. And it makes a nice gift. I was surprised at how many people asked for a sheet when they saw it. One young lady felt that the unique texture would complement her line drawings. And if you don't want to purchase parchment or vellum, handmade paper makes a fine base for awards certificates and scrolls.

You may find a market for your paper at craft shops or school and office supply stores. Even florists could be interested in a little something to add a special touch to a bouquet of roses.

Personally, I rather like the idea of a hobby that can pay for itself, especially one as inexpensive to start with as papermaking. Δ

You can become a hardcore forager

By Larry Cywin

Most homesteaders and country dwellers forage a little. It might be hunting for morels in the spring, berries in the summer, or boletes in the fall. Some forage salads, some go looking for a supply of autumn nuts for their holiday baking. The hardcore forager does all this and more.

When a visitor to your garden compliments you on your chenopodium as well as your tomatoes, you know he's a hardcore forager. Where you see a blaze of summer beauty in a stand of day lilies, the hardcore forager sees fritters and cooked buds and a salad made with the tubers. A lake fringed with cattails is liable to bring paroxysms of joy in the hardcore forager. There are flour, vegetables, and even something for the pickle crock there, not to mention a meat course of fish or frog legs. Experienced foragers see food, medicine, and other useful things in every forest and field.

A reliable guide book

Becoming a hardcore forager is not difficult. It takes a fair amount of time to learn the basics of foraging, then a lifetime of honing those basic skills. The first thing to do is to find a reliable guide book to learn which plants are good for what. The classic in the field is Stalking The Wild Asparagus, by the late Euell Gibbons. He originally published it in 1962, and Gibbons' love of the wilds (and wild foods) still shines forth 34 years later. The line drawings are very clear and make recognition easy. The recipes will get the novice wild-foods cook off to a good start. Stalking The Wild Asparagus is available from Storey Com-

munications, Schoolhouse Rd., Pownal, VT 05261.

Another basic manual of identification and use of wild plants is The Wild Food Trail Guide by Alan Hall. Sadly, this book is out of print. It might be found in used bookstores, or your library may be able to get you a copy via inter-library loan. This is a more compact book than Gibbons, but it has excellent indices, listing plants by use and season of availability. The section of potentially harmful look-alikes is also very handy. Oddly enough, the little Golden Nature Guides are useful for identification as well. While there isn't one on edible plants specifically, the one on flowers and the one on weeds both have excellent pictures for identifying your targets. The various guide books with photographs don't seem to be as useful. Sometimes it's hard to see the plant in question in the photograph. A clear line drawing is your best bet.

Now you have your book and you're ready to go. Almost. Book in hand, take a stroll in the backyard. Try to identify the edible wild plants right outside your back door. Odds are you'll have no trouble finding half a dozen or so. The most likely are dandelion, chicory, amaranth, rumex, chenopodium, and milkweed. These, along with cattails, are the most common edible plants in America.

When gathering wild plants, try to take only what you need. For example, if you're gathering chenopodium leaves for supper, just clip off the leaves, not the whole plant. While it may be more convenient to take the plant and separate the leaves at home, by only taking some of the leaves from each plant, you ensure that you (and other foragers) will have a new crop in a few weeks. There are some



Day lily

plants that you end up destroying while gathering, though. These include spring beauties, day lilies (when digging the tubers), and Jerusalem artichokes. Some patches can be heavily harvested, some should be left alone. Always be sure to leave enough for the next generation of plants to grow.

Tools

The question, once you've found your plants, is what to do with them. For gathering plant foods, you'll need some basic tools.

A good quality **trowel** is necessary for digging out roots and tubers. Avoid the cheap ones stamped out of sheet metal. They soon bend and break under steady use. A trowel with a solid shaft and a wooden or metal handle is well worth the investment.

A pair of **kitchen shears** is good for cutting leaves, etc., from the main plant. These can be had for relatively little at any kitchen store.

A **pocket knife** is handy for a multitude of purposes. Avoid the cheap knives and invest in a good one. It doesn't hurt to check the clearance shelves at the local discount store. A recent visit to Wal-Mart revealed Victorinox Bantam models (single blade, can opener, bottle opener, screw driver, wire stripper, key chain, tweezers, and toothpick) for \$2.50. The original price was \$6.97.

A fistful of quart or gallon size **sealable plastic bags** will help you get your treasures home. This all can go into your pockets or a **fanny pack**. If an extended gathering trip is planned, a **knapsack** or haversack can be used to keep your hands free. On shorter trips, a **net shopping bag** can be stuffed into a corner to help cart home the loot.

Safety

When gathering wild foods, be aware of the area you are working in. It is wise to avoid roadsides. Auto exhaust contains various compounds that can collect in roadside plants. These are not substances that you want to eat. Also, runoff from roads usually includes oil and gasoline. This is not anything you want to eat, either. Be careful of wild plants along cultivated fields. Some farming practices include the use of a variety of herbicides and pesticides that you definitely do not want to bring home.

Once you've identified your plants, and have a safe place to harvest them from, go out and get some. In general, the young leaves are milder in flavor and more tender. Gather those instead of the older leaves. At first, take only enough for a sample. This is a reasonable precaution, since you cannot be sure if you'll like the flavor, or if the plant will agree with your system.

A good example is the Jerusalem artichoke. The root of a sunflower (*Helianthus tuberosus*) contains **inulin**, a chain of fructose molecules. Inulin is the same thing that causes flatulence from beans. But where

beans are 10-15% inulin, Jerusalem artichokes are as much as 50% inulin. Therefore, eating them can cause flatulence, in some cases terribly painful flatulence. So don't eat a large helping of them until you know exactly how they react with your body. Day lily tubers can have the same effect.

The general rule is to **avoid plants that have milky sap**. The exceptions to this are dandelion and milkweed. To be safe to consume, the plant must not irritate the skin. A rough and ready allergy test is to scratch the inside of your elbow and apply a bit of the plant in question. Hold it in place with a bandage for 24 hours. If there is a reaction (swelling, redness, etc.),



Dandelion

then you may be allergic to that plant. **Do not eat it.** If it passes the allergy test, eat a **small** sample. A few leaves will be enough. If there are no ill effects within ten hours, then that plant is safe for you to eat. This is a

bit of a rigmarole, but it is necessary for your safety and well-being.

Preparing wild foods

Once you've determined that the plants you have collected will not cause you any undue difficulty, you need to prepare them. Milkweed, dandelion, and rumex, for example, all contain various bitter components that must be removed before eating. The easiest way to do this is to put the plant material in boiling water, boil it for a few minutes, drain, and repeat. Do this two or three times. The last time, cook until tender.

The various greens all have their own flavors, and can be combined to make interesting dishes. They may be used as one would use spinach. Amaranth greens are used in making a cream soup. Rumex can make an excellent sauce for pork or duck. The young leaves of dandelion, rumex, and chicory are very tasty when cut up into a salad with iceberg lettuce. They tend to be bitter, but this bitterness is much less in young leaves and works well with the bland lettuce. Use your imagination, read your cookbooks, and you'll find many niches in your diet for wild plants. They not only provide greens (these are the most common and easiest to gather), but a variety of cooked vegetables, seeds for flour and porridge, items for the pickle crock, and a number of seasonings and thickeners.

Fish

Once you have gotten used to using wild plants, it's time to consider wild meats. Probably the easiest to use and most readily available are fish. Unless you live in a desert, there is fishing nearby. The most common fish are the sunfish. These include bream, bluegills, pumpkinseeds, warmouth, rock bass, and even the large mouth and small mouth bass. Almost any pond or lake that has fish has sunfish, and they're easy to catch.



Amaranth

The ideal rig is an ultra-light casting rod and reel with four-pound test line and a number 8 or 10 hook. A pencil bobber completes the outfit. Bait can be red worms, leaf worms, meal worms, or wax worms. I like wax worms because their tough skin allows them to be used to catch several fish. Simply bait your hook, set your bobber so that the bait will more or less drop to the bottom, and cast. The hook is weight enough to make the bait sink, but without detracting from a natural appearance. Usually, the fish will take the bait while it's still sinking. If not, let it sit for a few minutes, and then reel it in very slowly. The movement will often provoke a strike.

Try for sunfish around piers and platforms, and in shallow weedy waters. In some ponds, you'll find many short, thick fish. These fish are stunted due to overpopulation, and every one that you catch should be kept. This provides more room for the remaining fish to grow larger. Even the very smallest sunfish are useful. If too small to eat, they can always go into the garden as fertilizer. This same fishing rig, with a slightly larger hook,

can be baited with worms and used to catch bullheads and catfish.

Cleaning a multitude of small fish can be very time-consuming, so fillet them instead. Each little sunfish will give two small fillets, about the size of a silver dollar. They don't look like much, but dipped in a batter of beer and pancake mix, they puff right up. This method of cooking avoids the many bones, and allows a little to feed a lot. Small catfish and bullheads are good fried whole, or they can be smoked. Either way, these fish are good eating.

Frogs

Frogs are another readily available wild meat. Only the legs are eaten. While bullfrogs are the most popular source of frog legs due to their size, any reasonably sized frog can be eaten. Frogs can be taken a number of ways. They are usually hunted at night, when they're most active. Bare minimum equipment for frog hunting is a strong flashlight, assuming that your state allows lights for frogs. By shining this light in the frogs' eyes, you dazzle them. Keeping the light in their eyes, you can just pick them up. Usually. If you want to be a bit more sure about collecting your frogs, you can use a *gig*. This is a four- or five-tined spearhead available at almost any sporting goods or discount store. Fix it to a shaft, and spear the frog through the body. Air guns, .22's (loaded with CB caps), and archery tackle can also be used for hunting frogs.

Of course, the meat on a frog is all on the legs. Simply cut them from the body, slip the skin off, and cut off the feet. The traditional way of cooking frog legs is frying. Any coating can be used, from bread crumbs to cornmeal to commercial mixes. Season your chosen coating to taste, dip the legs in the coating, then into beaten egg, and finally into the coating again. Then fry until nicely brown in a little oil.

Turtles

Local waters may also offer a third meat for your table: turtles. Terrapins and snapping turtles have graced many fine menus around the world, commanding high prices. These esteemed animals are yours for the taking. Snapping turtles are large and rather vicious. Certainly they fear little or nothing in their environment. Therefore, **caution should be used in handling them. The heavy, beak-like jaws can sever a broomstick, or a finger**, quite readily. Snappers must be handled very carefully. Usually, they can be carried by the tail, and neither the head nor the claws can get you. Terrapins are easy to handle, since they tend to pull into their shells. Simply grasp them by the sides.

Catching turtles isn't hard at all. The lazy man's way is to use jug lines. A large fish hook is snapped onto a wire leader, and the leader is attached to a plastic jug by a length of line. Chicken livers make a good bait. These are then dropped into the pond or lake of your choice. They can be left overnight, to be retrieved in the morning, or they can be tended from a boat during the night. If you decide to leave them overnight, make sure that you have some way of retrieving them.

Another way to obtain your turtle is with a trap. There are two basic traps. The first is a barrel or other large container with bait inside and a ramp leading up to the edge. This works best if the barrel is sunk about halfway into the water, with holes punched in the sides to allow the aroma of the bait to disperse. The turtle climbs the ramp, falls into the barrel, and cannot climb out. A variation of this trap uses a frame covered with hardware cloth, having metal sheathing around the top so the turtle can't get out. The other turtle trap is similar to a fish trap. Hardware cloth is secured to a square frame to make a box. On one side, a flattened funnel is made. The turtle enters the trap and cannot get out. Bait



Milkweed

for these traps can be fish or any other dead meat.

Preparing turtles

Preparing turtles is relatively easy. Snapping turtles are best killed by chopping off the head. Since they tend to stick out their heads when held by the tail, one person can hold the turtle up over the chopping block, and another can use an ax or hatchet to cut off the head. The snapper should then be hung up to bleed out. Once bled, the carcass should be washed with plain soap and a stiff brush. After cleaning, the tail can be skinned and the lower shell cut off. The internal organs are all removed, preserving the liver and any eggs that might be present. Be sure to carefully remove the gall bladder, the little green bag on the liver.

To make soup, the carcass, liver, eggs, and lower shell are put into a kettle with a bay leaf, some cloves, thyme, and allspice, covered with water, and simmered until the meat falls off the bones. Then remove the turtle and let it cool. When cool enough to handle, remove all the skin,

bones, claws, and shell. Chop the meat, liver, and eggs and return to the broth. Sauté onions and garlic until translucent, add flour to make a roux, and finally add crushed canned tomatoes or tomato juice. Simmer for a few minutes. Add this mixture to the turtle meat and broth, bring to a boil, and serve.

If you want to use the meat in other ways, the turtle can be cleaned and simmered as described above, and then the meat can be used in salads, omelets, stir fry, or other dishes. Smaller turtles are handled in a manner similar to crab or lobster, in that they are dropped into a pot of boiling water and cooked for 10 minutes or so. The turtles should be scrubbed and rinsed before cooking. Cleaning and use of the meat is the same as for the bigger turtles.

Crayfish

The final aquatic meat is the crayfish. These little crustaceans look like miniature lobsters, and taste similar to shrimp. They range across the country, in various species, and can be taken in several different ways. Water-dwelling crayfish can be picked up by hand (grasping them just behind the pincers to avoid a nip), caught in traps (like fish traps or lobster pots), or hauled in with nets, or even strings baited with bacon rind. Some live in low fields, tunneling down to the water level and leaving “chimneys” of mud. These are most easily gathered at night when they prowl about for food. In the South and in Hawaii, some live on crops and can be gathered as they travel between the fields and their homes.

Preparing crayfish is very easy. Simply drop them into boiling water and let them simmer for about 10 minutes. The water can be seasoned as for crab or shrimp. The cooked crayfish are then removed and cooled under running water. The tails can then be twisted off and the shell peeled away. Slide a fingernail or knife along the

midvein to clean out the muck, and your crayfish is ready to eat. The cooked and cleaned tails can be served in the same manner as a shrimp cocktail, coated with cornmeal and fried, used in salads or stir fry, or however you would use crab or shrimp.

When gathering wild foods, whether plants or animals, always be sure that you are not breaking any laws. Some areas, such as forest preserves and parks, have restrictions on gathering plants. In some places, turtles and frogs are considered game animals and are regulated by law. Check with your local conservation office to avoid violations.

If you are foraging on private land, get the land owner's permission. Many land owners are happy to let someone come and pick “weeds” if that person acts responsibly. Always forage only where given permission, and for the materials agreed upon. You might find other foods while in the field, but the land owner may be saving them for himself. Never leave a mess, and always leave farm gates as you find them. Like hunters and fishermen, foragers have to make a good impression to keep private land open to use.

This is not the last word on foraging. There probably will never be a last word. People will continue to discover the delights and rewards of foraging for generations to come. It helps us to appreciate what we have in the modern world, and to appreciate the wonder and diversity of nature. Δ

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Fish — this gourmet food is fun to catch, relatively easy to cook, and healthy to eat

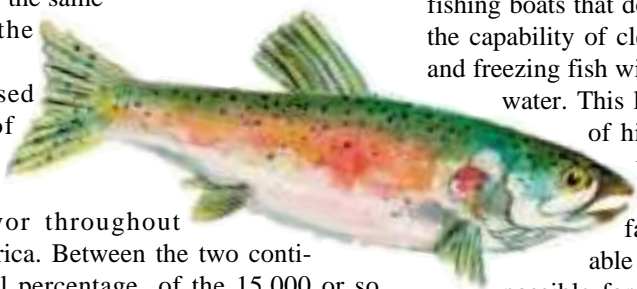
By Richard Blunt
(Art by Don Childers)



About 70% of the earth's surface is covered with salt water, and 4% of land surface (another 1% of the earth's total surface) is covered with fresh water. In these waters there are more than 20,000 recorded species of fish—15,000 of which are edible—and about 35,000 species of shellfish. Fossilized evidence and ancient rock paintings from around the world show that people have been successfully catching and eating a wide variety of seafood for more than 100,000 years. The Romans, following in the steps of the Greeks before them, were fond of fish and were quick to embrace such aquatic treasures as crawfish, red mullet, conger and moray eel, swordfish, electric ray, and sturgeon. The market in Rome featured vast ponds containing live fish brought there from the Mediterranean in tanker ships, and fish from rivers and lakes from all over Italy were sold in sacks of water. The market fish mongers sold live crawfish, sea turtles, lobsters, oysters, mussels, and every imaginable species of salt and freshwater fish. The ponds were constantly fed freshwater by the same aqueducts supplying the city with water.

But as centuries passed many of the species of fish and shellfish enjoyed by the Greeks and Romans lost favor throughout Europe and North America. Between the two continents, now only a small percentage of the 15,000 or so recorded edible fish are harvested for human consumption, along with a few popular varieties of shellfish like crab, shrimp, lobster, clam, oyster, and scallop. This is odd when you consider that in North America salt and freshwater alone, there are more than 500 species of fish, crustaceans, and mollusks for sale on the commercial market, and more than twice that number on the worldwide market.

During the past 30 years, however, fish and shellfish have become more and more popular since consumers have discovered that seafood is a low-fat, high-protein alternative to meat. This revived interest in seafood is also, in part, due to a successful long-term marketing effort conducted by the seafood industry. The main objective of this effort is to



Richard Blunt

introduce unfamiliar species of fish and shellfish to consumers while providing interesting and appetizing new suggestions on how to prepare them. In America this campaign is having a great deal of success. Today tilefish, mullet, squid, rock shrimp, wolfish, goosfish, shark, squid, and octopus, along with many other previously unfamiliar varieties of fish and mollusk that were once considered ethnic in our cuisine, are as common in markets as cod, flounder, and salmon. Worldwide, the fishing industry has developed fishing boats that double as floating processing plants, with the capability of cleaning, dressing, portioning, packaging, and freezing fish within hours after they are pulled from the water. This kind of efficiency brings many varieties of high-quality frozen fish to the market at very affordable prices. Along with this perfection in freezing and packaging, fast cross-country transportation in reliable super-chilled trucks and planes makes it possible for a market in Omaha or Phoenix to sell fish as good as anything found in the fish markets of Boston and Seattle. Popular television food shows and weekly newspaper food columns have given talented chefs a free hand to create and present delicious recipes using a wide variety of fish and shellfish. Restaurants have also discovered that their sales increase proportionately with their ability to feature high quality seafood at affordable prices.



Anglers have an even greater opportunity to enjoy fish as a regular food. They get to catch fish seldom available on the retail market—fresh water sport fish like yellow perch, crappie, black bass, walleye,

pickerel, and pike, along with their salt water and anadromous (live in fresh and salt water) cousins like striped bass, tautog, scup, and chinook salmon. These fish are a gourmet



food, exclusive to the angler. Fishing grounds also offer successful anglers commercial

species like crabs, clams, oysters, and lobsters, which often command high prices on the retail market.

I have been a sport fisherman since I was a kid, although I admit that I have fished more for sustenance than sport. When we were young, Dave, the publisher of this magazine, and I spent many spring, summer, and fall weekends fishing for cod, pollack, flounder, and Atlantic porgy (scup to some) in a small bay in Boston Harbor. For about \$10 we would rent a 14-foot row boat, equipped with two sturdy boat rods and two dozen sea worms. The price also included a tow to and from Boston Harbor buoy number 5, which was centrally located to all our hot fishing spots off

Hough's Neck. On a good day we would head

home with about 10 pounds of skinless fillets. This is enough fish to feed

15 or 20 hungry people. Even in the inflation ravaged 90s, this type of high-class, low-cost fishing is still available across the country. If you have never tasted fresh flounder or cod deep fried or baked within hours of being caught, or fresh trout, yellow perch, or catfish field dressed and pan fried over an open campfire, you have yet to experience the gastronomic reward of eating genuine gourmet food.

With high-quality fresh or frozen fish, any cook with a little imagination can make use of an easily learned basic set of rules and become a master at gourmet fish cookery. It is important to note that despite the higher prices one encounters today, fish and shellfish are still among the best buys in the market. There is no waste in a pound of fillets, a pint of shucked clams, or a pound of scallops, and all fish contains a high quality, easy to digest protein that is unsurpassed by any animal protein.

The elements of fish cookery

Fish cookery is basically simple, with handling and cooking principals that are quickly learned and easy to follow. Seafood recipes, however, are at best well-informed suggestions, because successful fish cookery depends primarily on the quality of the ingredients and the skill of the cook. In this issue I will discuss the basic talents necessary to ensure

that your seafood dishes are always a success. Then I will share some easy-to-prepare recipes that have been standards in my family for many years.

How do you recognize when fresh fish is fresh? If it is frozen, how do you tell that it has been handled properly by the packer and the retailer? Fresh fish, from the creel or from the market, should have firm and elastic flesh, clear and full eyes, bright red gills, a clean pleasant order, and an absence of reddish discoloration on the ventral side of the backbone, that is, the side of the backbone that's on the inside of the fish. Cloudy, sunken eyes, and gray colored gills are the first recognizable signs of old, decaying fish. When the head, gills, and backbone are gone, rely on your sense of smell and touch. If you come across fresh fish that is prepackaged, as it often is in supermarkets, don't buy it until you are sure that it is fresh.

When buying frozen fish, look for packages that are frozen solid with no air space between the fish and the packaging. The flesh of frozen fish should be glossy and free of all signs of freezer burn, which causes discoloration and dryness.

What is freezer burn?

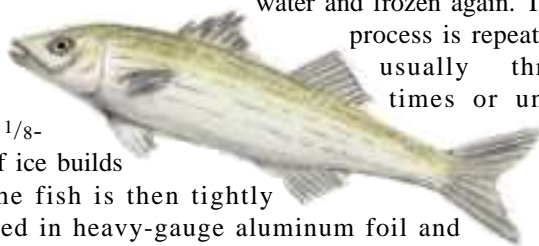
Freezer burn is caused when water molecules in the form of ice crystals form on the surface of food left exposed to the dry atmosphere of the freezer. Through a process called sublimation, these solid ice crystals transform into a gas inside the freezer, leaving a patch of dried tissue on the surface of the food. Sublimation is the equivalent of high temperature liquid evaporation, but

at low temperature.

If you must freeze fresh fish, freeze it immediately unless it is going to be eaten within 24 hours. Since air infiltration and water loss are the culprits of freezer burn, select packaging that is air and water-impermeable. Plastic wrap or bags that indicate on the package that they are manufactured for freezing, as well as heavy gauge aluminum foil, are excellent freezer packaging materials.

Air cannot penetrate ice, so fish frozen in a solid block of ice will be well protected. My favorite method for freezing whole fish is to coat them individually in an ice glaze. The fish are first frozen without wrapping, then dipped in ice water and frozen again. This process is repeated, usually three times or until

about 1/8-inch of ice builds up. The fish is then tightly wrapped in heavy-gauge aluminum foil and



placed in freezer bags for storage. I find that freezing promotes oxidation of the unsaturated fats in some fish, causing a variety of off flavors. For this reason I never freeze striped bass, blue fish, or mackerel, due to their high oil content.

Never thaw frozen fish at room temperature. Bacteria flourishes at room temperature and can cause everything from off flavors to outright spoilage.



Preserving fish

It is important for anglers to understand that the only way to preserve their catch is to keep it alive or cold. If the surface water is cold, a stringer or wire basket will keep some species alive for a few hours. For the best quality and flavor, all fish should be killed, field dressed, and super chilled immediately. Field dressing means simply removing the gills, guts, and bloodline that runs along the ventral side of the backbone. Super chilling means refrigerating the fish in an insulated cooler by laying them on a blanket of crushed ice mixed with a little rock salt. One pound of course ice cream salt mixed with 20 pounds of crushed ice will hold fish at about 28 degrees F., which is 10 degrees colder than most refrigerators.

Seafood recipes can be the most obtuse formulas that you will ever encounter. Old Sully, the chef who taught me a great deal about the science, technology, and artistry of food, made a fish stew that was superb. Whenever I would ask him how much of any ingredient he used to make



Type of seafood	Amount to buy per serving
Littleneck or cherrystone clams, in the shell	6 to 8
Clams, soft shell	12 to 20
Round fish, whole	12 ounces
Flat fish, whole	20 ounces
Fish, pan dressed	8 ounces
Fish steaks, bone in	8 ounces
Fish steaks, no bone	5 to 6 ounces
Fish fillets	4 to 6 ounces (let the size of appetites rule)
Mussels in the shell	2 pounds
Oysters in the shell	6 to 8
Oysters, shucked	½ pint
Scallops, shucked	5 ounces
Shrimp, headless	6 to 8 ounces
Shrimp, peeled and deveined	4 to 5 ounces

Table 1. Approximate quantities per serving

this masterpiece, he would give me one of what he called “the relative units measurement:” a little, some, a lot, plenty, and enough. This little anecdote always comes to mind when I read the section of many seafood recipes that is supposed to tell you how much fish to use. Recipes often call for “two whole drawn bass or enough to feed six people” or “four pan-dressed trout.” There was a time when measurements like this left me scratching my head, wondering how much fish to buy. The difference between the terms “whole drawn” and “pan dressed” were also a mystery.

A glossary of fish terms

Here are some reliable descriptions of the most common methods for dressing fish, followed by suggestions on how much fish or shellfish to buy or bring back from the stream, when a recipe is not specific on the amounts to use.

Whole fish or “in the round:” This is fish purchased whole just as it comes from the water before it is gutted and scaled.

Drawn: This term applies to fish that have their entrails removed, with the head, fins, and scales left intact. This is a great way to buy fish if you are making fish stock or planning a classic presentation with the head and tail left on when the fish is served.

Dressed or pan-dressed: This is fish that has been eviscerated and scaled, with the head, fins, and tail removed.

Fillet: The sides of the fish taken lengthwise away from the backbone. Fillets are usually boneless, and they are sold with or without the skin attached.

Split fish or halved fish: A whole pan-dressed fish cut open flat like a pancake on the ventral side of the back bone. The bones may or may not be removed. If the bones are removed, the cut is sold as a block fillet.

Steaks: These are cross-cut slices taken from a large drawn or dressed fish cut ½- to 1½-inches thick. Halibut, swordfish, salmon, and tuna are most frequently sold in steak form.

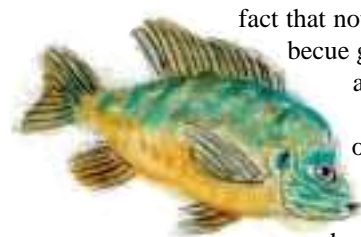
Table 1 will help you determine the amount of seafood to buy when the recipe doesn’t tell you how much to get.

The “doneness” problem

The most important element of fish cookery is for the cook to understand that fish cooks faster than animal meats. Overcooking is major fault that many cooks fail to solve because they feel that fish comes in so many species, shapes, sizes, cuts, and textures that precise cooking times



are impossible to pin down. This reasoning is also supported by the



fact that not all range tops, ovens, barbecue grills, campfires, and so on, are created equal. It is not possible to account for all of the variables with one suggested cooking time or temperature. On the other hand, all cooks, even the pros, need something to guide them through the preparation of a new seafood recipe, or even a familiar recipe in which an unfamiliar type of fish or shellfish is being used. There is a method to solving this problem, but any method for measuring doneness is useless unless you know what you are looking for. Many recipes suggest that fish is properly done when the flesh flakes. Well, fish will start to flake from the point of being perfectly cooked, and continue to flake until it is absolutely mummified from the heat. When any fish starts to flake, an experienced cook will also look for other important changes in the condition of the flesh. If the fish is ready for eating, the flesh, which is transparent in the raw and partially-cooked state, will then have turned opaque.

A few years ago, calculating the doneness factor of fish by using what is called the "Canadian method" became popular. This method calls for measuring the fish at the thickest point, and cooking it for 10 minutes at 450 degrees F. for each measured inch. The formula works with some types and cuts of fish, but shows serious flaws with many others. Many fish taste best when cooked at lower temperatures, and by cooking methods that cannot reach 450 degrees F., such as poaching and steaming. When cooking large oily fish over charcoal, I often bake the fish in the oven for a period of time at a moderate temperature and finish it on the grill at a high temperature.

Combining a modified version of the Canadian method with the old reliable "test with a fork for doneness method" has worked well for me. This modification also works well with a wide variety of recipes using compound production procedures, such as rolled, layered, or stuffed fillets, and whole stuffed fish. Here is how it works. Measure the fish according to the Canadian method. This will help you approximate how long to cook the fish, regardless of the cooking method. If the fish measures an inch or more, start testing with a fork at the 7 minute point and repeat at 2-minute intervals. Do this by inserting the fork into the thickest part of the flesh and gently turning the fork and pressing inward. If the fish is ready, the still juicy flesh will show a trace of translucence, which will turn opaque as the fish continues to cook after it is removed from the heat. If you are not conditioned to paying this much attention while cooking fish, this will seem to be a little much at first. But I assure you, if you can successfully eyeball a hamburger on

a charcoal grill, you can become an expert at fork-testing fish.

Cooking suggestions and other hints

Be aware that deep frying, sautéing, and pan frying when you're cooking fish are very different cooking methods, each with its own set of rules. Deep frying fish requires a volume of oil large enough to immerse the fish completely. The process is similar to boiling potatoes, except that oil is substituted for the water. Most deep frying is done at 360 to 380 degrees F. The fish should be coated with one of the many coatings designed for deep frying including batters and other compound coatings that are composed with combinations of milk, flour, eggs, and corn-meal applied in separate layers.

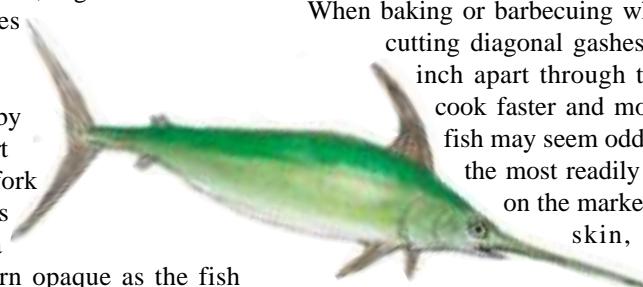


Sautéing works best with small pan-dressed whole fish like crappie, brook trout, and yellow perch. I dredge these fish in seasoned flour, corn meal, or bread crumbs, then cook them over a low flame in melted butter or margarine until browned on both sides and cooked through. Liquid batters and compound coatings, especially those that employ eggs, should be avoided when cooking with this method because they take on a leathery, unappetizing texture when subjected to the low heat.

Pan frying is similar to sautéing, but at a higher temperature using oil instead of butter or margarine. Despite the higher cooking temperature, liquid batters are not recommended here either. Compound coatings that use fast-browning outer coatings like bread crumbs, cracker crumbs, or corn flake crumbs are easier to control when using this method, as opposed to deep frying.

When deep frying fish fillets of any thickness, these coatings often brown before the fish is completely cooked. Pan frying uses less oil than deep frying, which makes it easier to control cooking temperatures. Frying in a 7-inch cast iron skillet, coated with ½ cup of peanut oil over a medium flame, is perfect for pan frying coated fish.

When baking or barbecuing whole fish with the skin on, cutting diagonal gashes about ½-inch deep and 1 inch apart through the skin will help the fish cook faster and more evenly. Cooking whole fish may seem odd in an age when the fillet is the most readily available form of raw fish on the market, but cooking fish with the skin, head, and tail attached retains more flavor. Ask any trout angler who has been fortunate enough to enjoy a fresh-landed trout sautéed at stream-side over an open fire.



When cooking fish that is wrapped in foil, leaves, or parchment, increase the cooking time a little to compensate for insulation created by the enclosure.

Fresh fish should be taken from the refrigerator and allowed to come to room temperature before cooking. This will shorten the cooking time and retain more of the natural flavor.

Fish cookery, just as with any other culinary art, can be simple or complicated. The range of flavor and texture in seafood parallels that of fine wines, from the understated to the clearly defined. Unlike fine wines though, the gourmet delight of seafood is more available, easier to understand, and the possibility of masterpiece creation is in the hands of all who love to cook. In the recipe section, I have selected simple and easy to prepare formulas. I have left the door open for you to make your own fish choices because each of these formulas works well with a variety of species.

I hope the information and the recipe suggestions that I share with you will start you on your way to becoming one of the world's dedicated ichthyophiles.



Sauté Meunière Amandine

This is a culinary concept that I was taught in Chef Sully's Fish Cookery 101 class—a class that never really existed except in my mind as I got instructions from him on how to cook. The fancy recipe title isn't really the name of a recipe; rather, it describes a very old French classic-cooking process. Loosely translated it means to coat with flour and pan fry at low temperature with almonds. One of Sully's many gifts as a chef was his ability to make very simple, easy to prepare items sound as though he invited a chef from the Ritz Carleton to prepare our Friday seafood luncheon specials during Lent. The reality was: Sully at 1 of the ranges with 6 cast iron skillets, and me at the other range with the same. When this item, in particular, was on the menu, both of us were glued to our sauté stations from the beginning of lunch to the end. I often wondered if any of the other 25 items on the menu was moving.

This formula is a classic example of how a seafood recipe can be little more than a well informed suggestion. The production process, sauté meunière, is the well informed part of this formula; the rest is open to free interpretation. I have prepared this dish with cod, haddock, pollack, trout, yellow

perch, catfish fillets, mussels, and scallops. With this recipe I suggest using almonds and mushrooms, but I've watched others use red sweet peppers, shallots, pecans, and Greek olives.

Ingredients (serves four):

6 Tbsp. blanched, slivered almonds
4 8-oz. skin-on fish fillets, steaks, or pan-dressed fish
½ cup milk
½ cup Wondra flour (I like the grainy texture with this process)
6 Tbsp. butter or margarine
¼ cup fresh lemon juice
¼ cup fresh, sliced mushrooms

Equipment: 7-inch well seasoned cast iron skillet or an equivalent size skillet with a nonstick surface.

Method:

1. Dry roast the almonds over medium-low heat until they turn a light golden brown, then remove from the pan and set aside.
2. Dip the fish fillets or steaks in milk, then dredge them in flour. Shake off any surplus flour.
3. Melt the butter or margarine over medium-low heat, then sauté the mushrooms lightly. Remove the mushrooms and combine them with the almonds.
4. Place the fish in the pan. If you are using fillets, have the skin side up. Sauté the fish, slowly, over low heat until brown on one side, then flip the fish over to brown on the other side. Remove the fish to a warm platter and set aside.
5. Add the lemon juice, almonds and mushrooms to the butter in the pan, raise the heat to a medium flame. Stir the mushrooms and almonds until they are heated, then pour this sauce over the fish and serve immediately.

Hearty breakfast fillets

Here is a fish fry recipe that is perfect for small thin perch and crappie fillets that usually end up in the freezer until you catch enough to feed the family. While on a fall fishing/camping holiday a couple of years ago, I watched two fly fisherman prepare this recipe for breakfast on a chilly morning alongside one of Cape Cod's most popular trout ponds. The trout were hiding that morning, but the yellow perch were grabbing at every thing that we threw in the water. At first, all of us were throwing these lowly fish back as fast as we could unhook them. As the sun finally started to peek over the trees, none of us had yet hooked a trout. Finally, one guy, a big man with red hair, named Phil, called to his



friend. "Hey, Ace, what did you bring for breakfast, I'm getting hungry."

Ace was a balding man with shoulder length blond hair, wearing shorts and crew socks. You don't see many fly fisherman comfortably wearing shorts on a cold October morning. "All I have is a box of corn flakes and a carton of skim milk," he replied.

Phil then turned to me and said, "Hey, guy, you wouldn't have a couple of eggs would you?" As it turned out, I did. "Great," he said. "Let's team up and fillet a bunch of these perch. They won't win us any trophies, but they make great breakfast food."

The three of us fished for another half-hour to catch a few keeper perch. After dressing, we had about two pounds of fillets. It took Phil only a few minutes to put this breakfast delight together.

Note: Phil made corn flake crumbs by putting the flakes in a paper bag and crushing them with a small log. If you don't have a small log in your kitchen, you can use a blender, food processor, or buy corn flake crumbs from your local market. Also, I've added flour to Phil's coating mixture because I feel that

flour helps to prevent oil absorption into the fillet.

Ingredients (serves two):

½ cup flour
Kosher salt and fresh
ground black pepper to taste
1 egg
½ cup milk
1 cup corn flake crumbs
1 lb. fish fillets (small thin fillets preferred)
½ cup peanut oil

Equipment: 7-inch well seasoned cast iron skillet or an equivalent size skillet with a nonstick surface.

Method:

1. Combine and blend the flour with the salt and pepper in a shallow bowl.
2. In a separate bowl, combine and blend the egg with the milk.
3. Place the corn flake crumbs in a third bowl.
4. Coat the fillets with flour, then shake off any excess flour. Dip the fillets in the egg mixture, making sure that the fillets have no dry spots.
5. Coat the fillets with corn flake crumbs. Inspect fillets to ensure that each is completely coated with crumbs. If necessary redip the bare spot in the egg mixture, then back into the crumbs.
6. Heat the oil over a medium flame. Fry each fillet until golden brown on each side. Corn flake crumbs brown quickly, and the thin fillets cook equally as fast, so the whole process will only take a couple of minutes.

Broiled fish fillet with piri piri sauce

Piri piri is a family of Portuguese hot sauces. These sauces are used by many Cape Cod chefs to add zip to broiled and baked fish. I use the term "hot sauce" in a very broad sense because Portuguese piri piri sauces are formulated to complement the taste of a seafood, not obliterate it with chilli pepper burn. I use the sauce when broiling or baking black



bass, striped bass, walleye, and mackerel. Salmon, tuna, halibut, shark, and

swordfish steaks also take on a new excitement when

enhanced with this sauce. I also make a fiery version of

this sauce by adding some chilli pepper flakes and serving it cold as a dipping sauce for shrimp, mussels, and clams.

When broiling fish, the thickness of the fillet will determine the distance to place it from the heat. For fillets that are less than 1 inch thick, place the broiler pan 2 inches from the heat; place 1-inch fillets 4 inches from the heat. Thicker fillets should be placed at least 6 inches from the heat.

Ingredients (serves two):

1 lb. fish fillets (black bass, sea bass, haddock, cod, pollack, or bluefish)
1½ cups white wine
⅓ cup fresh lemon juice
2 Tbsp. mixed pickling spice, crushed
½ tsp. cumin seeds, crushed
3 cloves fresh garlic, chopped
6 Tbsp. butter or margarine, melted
½ tsp. paprika
Enough piri piri to coat the fish after cooking

Method:

1. Cut the fillets into serving size portions and place them in a single layer in a glass or other nonreactive baking dish.
2. Combine the wine, lemon juice, pickling spice, cumin seeds, and garlic. Pour this mixture over the fish. Marinate the fish in the refrigerator for 20 minutes.
3. Remove the fish from the marinade, brush off the spices and place the fish on a well-greased broiler pan. Blend the paprika with the melted butter or margarine, and brush this mixture generously onto the fish.
4. Preheat the broiler and broil the fish at distance from the heat that will ensure even cooking without burning. Broil the fish until it is cooked on one side. Carefully turn the fillets over, brush again with the butter and paprika mixture, and return the fillets to the broiler to finish cooking.
5. Heat the piri piri sauce, spread a blanket of the sauce on the fish, and serve immediately—if not sooner.



Piri piri sauce

The flavor of this sauce improves with a little aging. I suggest you make it a couple of days before you plan to use it and store it in the refrigerator in an airtight plastic storage container.

Ingredients:

1/3 cup extra virgin olive oil
1 medium onion, chopped fine
4 fresh garlic cloves, chopped fine
1 12-oz. jar pickled hot jalapeno peppers, drained and chopped fine
1 4-oz. jar pimentos, chopped fine
1 12-oz. bottle chili sauce

Method:

1. Heat the olive oil in a 7-inch cast iron skillet over medium heat. Add the chopped onions and sauté them until they are translucent.
2. Add the chopped garlic and cook the mixture for two minutes, then add the drained and chopped jalapeno peppers, chopped pimento peppers, and chilli sauce. Reduce the heat to low and slowly simmer the mixture for 5 minutes.
3. Let the sauce cool, then transfer it to an airtight container and place it in the refrigerator. It will keep for up to two weeks under refrigeration.

Using all of the catch

My first formal lesson in fish cookery was how to prepare, cook, cool, and store a 20-gallon batch of fish stock. Chef Sully used all of this stock to make a clam or fish chowder for the weekly soup-and-sandwich Friday special, so we made a fresh batch of stock every week. Some flesh always remains on the fish bones and head after filleting and steaking, and every week Sully had 70 pounds of fresh fish heads and bones delivered with our regular fish order. "Don't waste those bones Blunt; make us a good fish stock." This was Sully's way of assigning that morning's work to me.

Today, when you mention the word "stock," many cooks, professionals included, turn pale with thoughts of pots bursting with meat, bones, and vegetables simmering for hours on top of the stove. To the contrary, fish stocks



require about 5 minutes of preparation and, usually, only 30 minutes of simmering. Three or four pounds of fish bones or heads, a small amount of vegetables, some water, a bit of seasoning, and that's it. A good fish stock is essential to the successful preparation of fish and shellfish stews, chowders, soups, and sauces. The alternatives to a good fish stock are water and bottled clam juice. Water does little to enhance flavor, and bottled clam juice is a salty, heavy tasting product that masks rather than complements the delicate flavor of high quality fresh and frozen fish.

Here is a simple fish stock that can be prepared in less than an hour, reduced in volume to save space, and frozen in small plastic containers in two-cup portions. Mix two cups of this concentrated fish stock with two cups of water and you will have enough full-bodied stock to make a soup, chowder, or stew for six people.

Basic fish stock

This recipe makes about two cups of concentrated stock.

Ingredients:

1 small bouquet garni (1/2 tsp. dried basil, 1/2 tsp. dried thyme, 1 sprig fresh rosemary)
4 lbs. fresh fish heads, and bones
1 small onion, chopped
1 small carrot, chopped
8 cups water

Method:

1. Make the bouquet garni by tying the basil, thyme, and rosemary in a small piece of cheese cloth.
2. Remove the gills from the fish heads if they haven't been removed already. Discard the gills and all skin and wash the fish under cold running water.
3. In a suitable size stock pot combine all of the ingredients except the bouquet garni. Bring the mixture to a boil and reduce the heat. Let the stock simmer, uncovered, at the lowest possible heat for 15 minutes. Add the bouquet garni and continue to simmer the stock for 15 minutes.
4. Strain the stock through dampened cheese cloth that is 4 layers thick.
5. Return the stock to the pot and simmer uncovered until it is reduced by half. Do not boil the stock. Boiling will make it muddy.
6. Cool the stock in the refrigerator. Freeze or refrigerate in plastic containers.

That's it for this issue. My fishing rod is near the door and I'm out of here.

(See if you can match the drawings of the fish scattered throughout this article with the following: sturgeon, Atlantic cod, swordfish, mullet, sea catfish, striped bass, giant rock scallop, pacific littleneck clam, crayfish, porgy, coho salmon, tautog, eastern oyster, freshwater catfish, pumpkinseed, flounder, rainbow trout, speckled trout, perch, red crab.) Δ

The saga of the brand name computer and why you should buy a “clone”

By John Silveira

Since our first issue we’ve told readers: if you want to go back into the woods, bring the best tools you can. If you want to take only a black powder rifle and an axe, go ahead. But our advice has always been to bring a truck/car, laundry machines, chain saws, modern carpentry tools, modern firearms (modern firearms are some of the best-made products in the world), etc. And, if you can, bring a computer.

A computer?

Yes, though, if you’re sure that all you’re going to do is play games, track recipes, and write your lonely Aunt Ethel, you may be one of the millions who don’t really need one. But for those of you who have learned to make use of computers, you already know the benefits to having access to the internet: for gardening, problem solving, homeschooling, income pos-

sibilities, and communications. The list grows larger every day. On top of that there are educational, landscaping, religious, architectural design, law programs (wills, divorce, suits), etc, and even programs targeted at the reloader.

So, if you can afford one, what’s the best one for you to get? You can go to a thrift store and find an old XT for under \$50—but I wouldn’t. The XTs are among the earliest of the personal computers and will run almost none of the new software and virtually none of the software that’s useful nowadays. Following the XTs were the ATs. Once king of the hill, the same objections to picking one up (and they’d be cheap) holds here as it did for the XT.

Following the ATs were the 386s. They were the first of the machines that ran MicroSoft’s Windows software and, though once revolutionary, I wouldn’t take one now even to use as a doorstop. Following these were the 486s; once the Supermen of the computer world, they now stagger and limp under the latest software as if the programs were written with kryptonite.

Then came the Pentiums. These are the computers on the store shelves today at computer stores, electronics stores, and even the big discount stores.

The first Pentiums ran at 75 megahertz (MHz) but today the computer magazines are evaluating the 233 and 266 MHz machines. This is good news for the buyer on a strained budget because these new, faster chips are driving the slower machines to lower and lower prices and, by this fall, when you’re reading this, the prices on the 166 and 200 MHz Central Processing Units (CPUs) may make them too difficult to resist.



John Silveira

My quest for a computer

In January of 1997, when I was about to buy a computer, the 200 MHz machines were the de facto standard (see the sidebar on why megahertz is important in a computer). By passing on a 200 MHz and getting a 166 MHz or 133 MHz, I could have saved \$300-\$500. But I wouldn’t then, nor would I now, get a Pentium slower than a 133 MHz unless I got a fantastic deal on it. The reason is, I make my living using computers and the software that runs on them. Friends who bought Pentium 90s (runs at 90 megahertz), once the fastest machine on the block, find their machines drag their butts trying to run the latest software, e.g., *Office 97* from Microsoft. Those who try to run it on their 486s must be going out of their minds.

You probably don’t need a 200 MHz machine, and unless you’re heavy into production graphics or you play some serious computer games—neither of which describe me—you’re not going to miss the 16% loss of speed with the 166 MHz machine or the 33% loss with the 133 MHz. Even at 133 MHz, things seem to happen with lightning speed.

So, in January, when I suddenly had the money available, the problem con-

What is a clone?

Right from the early days there have been major manufacturers hoping to cash in on the personal computer phenomenon. IBM, Compaq, Osborne, Sony, and other large corporations hoped to steal the market. But there were also the small manufacturers, people working out of cellars, garages, and small store fronts. They manufactured personal computers, one at a time, and usually using the best quality parts. Their computers often had no name on them, or perhaps they carried some whimsical name thought up by a mother, daughter, or wife. These independently made machines became known as the clones.

fronting me was, what kind of machine did I want to replace my lumbering 486 with? I needed a good reliable machine at an affordable price. So I went looking for it, and it is that search and the aftermath of my purchase which have become the fodder for this column and the basis for my advice. What you're about to read is part product review and part advice about what kind of computer to buy.

The right machine

When I set out, the chief problem I had was time. I live in southern California and my job with this magazine is 700 miles away on the Oregon border. If I was going to bring a computer north with me for deadline, I had to buy one within two weeks.

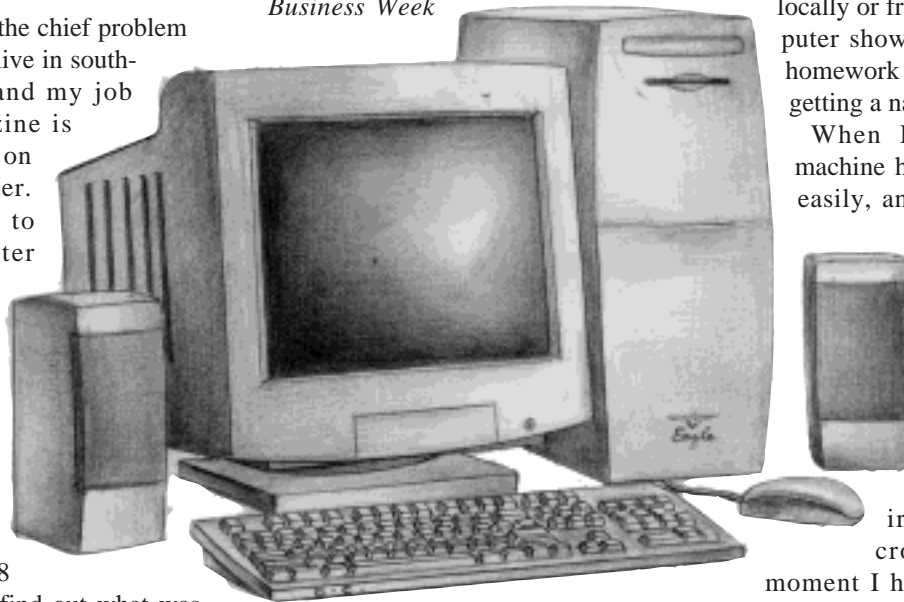
I spent the next 10 days reading computer magazines that went back 18 months. I had to find out what was available and what of that was considered good. I wavered between three different Intel Pentiums, the 133, 166, and 200 MHz, as well as the Cyrix 166 MHz. I window shopped with my computer-savvy friend, Cathy, and I read up on, and made a list of, the quality components I wanted installed in my machine. (See the sidebar on what components I settled on.) But I also considered buying a brand name computer right off the shelf and I looked at the Compaqs, Toshibas, IBMs, Hewlett Packards, and Packard Bells among others. Then I read all the reviews I could find on each of these machines.

With one day to go, I had settled on a clone (see sidebar for what a clone is) assembled locally. But there was one machine I couldn't find reviewed,

and that machine intrigued me because it seemed to be all that I wanted and came from a major manufacturer. It was "refurbished" by the manufacturer but it carried a full warranty. It was the Hewlett Packard 7285 with a 200 MHz Pentium chip inside.

On the last day, as I headed for a local computer store, I stopped off at the main library in Oxnard, California, and there I finally found two reviews of the HP 7285.

Business Week



rated it the best computer buy of 1996. Though not a computer magazine, here was a business magazine rating it as the best buy for both home and office. (Remember this because it becomes important later.) Also, *PC World* rated the machine, saying it was the second best buy of 1996—and they know computers.

After a quick review of HP's service rating in *PC Magazine* in which Hewlett Packard's service was rated the very best, the deal was all but sealed. All that remained was to find out what a refurbished computer was. A salesman at Fry's Electronics, a discount store in the L.A. area, explained it may have been a floor demo, a cancelled order which was returned, or even a computer that had had a bad board and was returned and repaired.

In any case, the machine would have been brought back up to snuff and should be in perfect working order—with a full warranty and at a great price to boot. How could I go wrong?

My plans for a clone were out the window. I would buy the HP based on the reviews, the HP name, their reputation, and their service. That evening I was on my way to L.A. to buy it. My friends, as well as my boss, had decided to buy computers also. But each of them was buying a clone either made locally or from a vendor at a computer show. None had done the homework I had done. None was getting a name-brand.

When I brought my new machine home, it went together easily, and in less than a half hour it stood on my kitchen table whirring and humming as it came to life. I was proud. I beamed before my children. I was too

elated to pay attention to the little irregularities that cropped up from the moment I had turned it on. But these problems should have been cause for concern because they were going to haunt me for the next four months, nagging at me like an itch no amount of scratching could cure. It was like I had just caught scabies.

The problems begin

I'm a classical music lover, and the first problem I encountered with the machine was that the CD drive wouldn't play my music right. The only way I can explain it is to say that going from movement to movement of many symphonies, there is sometimes no break in the music, and the only way to know you are in a new movement is either to know the score or to watch the "counter" and see the track change. But, on my new computer, as a track ended there was often an

What's all this business about megahertz, and why's it important to you?

The “megahertz (MHz) determines how fast your Central Processing Unit (CPU) processes information. Relatively speaking, a 100 MHz machine processes at half the speed of a 200 MHz machine. So, a 166 MHz machine is about 16% less “powerful” than 200 because it processes information 16% slower. But watch out, some 166 MHz chips are actually 166 486 class chips, and the 486 is the generation of chips behind the Pentium (which should have been called the 586). So, a 166 MHz 486 is not as good as a 166 MHz Pentium.

But why do we need all this speed and why the tendency toward more and more speed? Here's why: Back in the old days, the computer didn't have much operating memory (or Random Access Memory—RAM) or storage memory (that's your disk storage), so software was written real efficiently, as well as without a lot of features. For example, the original *WordStar* word processing program was a mere 64 kilobyte (KB) program and was fantastic, even though it didn't do a lot of nifty things like multiple column formats, spell checks, graphics imports, etc. But as software developers added improvements, the philosophy was that software packages had to get to market fast or you'd lose market share. The result was that the developers couldn't play around with the software for three months, six months, or a year trying to squeeze every bit of efficiency from it. This meant that, as the software improved, it ran slower as there was more for the computer to do. However, the machines were getting faster and a philosophy developed that said not to worry about how cumbersome the software got, because the machines would get faster and the storage memory (hard drives) huge to hold the bigger programs, and these two factors would mask the inefficiency of the software. And so far they've been right.

The latest word processing packages are about 100-200 times larger than the original *WordStar*. The machines are also about 100-200 times faster. This means that even though you get more goodies with the latest software and it's easier to use, you don't see much of an improvement in the apparent speed with which the computer operates. But it also means that if you try to run the newest software on old machines, you will personally become less and less efficient. So, get speed because the next generation of applications are going to be just that more larger and more unwieldy.

abrupt loss of audio until the track actually changed. The break could last anywhere from a half second to seventeen seconds.

HP Pavilions, which is what my machine was called, have the technical support number right there in the software. I called the number, submitted my support identification number, and was connected with a technician whose job it was to solve my problem. The technician I spoke with ran me through several steps, instructing me how to remove software from my machine that he felt was causing the problem, then leaving me on my own to test the machine again to see if it worked right. When I tested it, however, the problem was still there. But I was persistent. I was going to call HP until the CD player worked right. I would make at least two dozen calls to them over the next four months.

During that time my computer would reveal it was sicker

than I had thought. One technician told me my computer problem was a “quality” problem, not a warranty

problem. I told him that such an explanation was unsatisfactory and demanded to speak to his supervisor.



He wouldn't get the supervisor, but I never heard that excuse again.

It had other problems. For example, icons on the Windows desktop, and in the windows themselves, changed on their own. "View" settings changed for no apparent reason. For example, if I changed from "large icons" to the "list" feature in a particular window, then left that window, the settings changed back to "large icons" when I returned. The technicians told me they'd never heard of these problems before. And when I reported that some software written for Windows 3.1 wouldn't run under Windows 95 on my machine, one even told me I couldn't run a program written for Windows 3.1 under Windows 95. But when I loaded the program on a friend's computer that also ran under

What is the CPU?

The Central Processing Unit (CPU) is one third of the "brain" in a PC. It's the computer chip where the software applications, such as word processing programs, manipulate the data. Even though the CPU would be useless without the other components in a computer, the CPU is what we think of as "the computer" and, when someone says, "I got a 486" or "I got a Pentium," it is the CPU they are referring to.

Ever since the first PC, manufacturers have been trying to make the CPUs run faster and faster. A faster CPU does two things:

- (1) It allows your computer to run your software more quickly—this includes the new software and software upgrades that seem to appear regularly.
- (2) It makes any computer you have right now obsolete. It used to be that the automobile industry was accused of planned obsolescence. But unlike the automobile industry, where the changes were often just style changes, the changes in computers are real performance changes and this, in part, is what sells a lot of new computers.

Windows 95, it performed just fine, and I realized I had a bigger problem

than just malfunctioning hardware—I now no longer knew which of the faceless techs were competent.

At one point, one of the techs asked me what I use the machine for. I told him I'm a magazine editor and writer.

"A business?" he asked.

"Yes."

"Well, this machine isn't really meant to be used in a business. This computer was aimed at the home market."

"Your higher price Vectra models, right?"

"Yes," he said.

"They cost a *lot* more," I said.

"That's right."

"The magazine I work for uses a bunch of clones, as do a bunch of other businesses I know of, including some major corporations. The machines are real work horses with brand name parts. Those machines seem to have minimal problems. Are you telling me that my machine is not the equal of a bunch of clones, and that to get the same performance and reliability from HP I must spend twice as much on another computer that's only claim to fame is that it only works as well as a clone that cost half as much?"

"No."

"Then tell me, what did HP put in their Vectra that made it more expen-

What's RAM and why's it important to you?

Random access memory (RAM) is the second part of the computer's "brain." It is kind of the "short term memory" in your computer. When you run your word processor on your computer, a portion of the software is brought into the RAM. And the CPU will use the software to manipulate the data. The data being manipulated is also held in RAM. You could think of RAM as the work area of your computer. Having more RAM does three things for you:

- (1) It allows you to get more of your application into memory where it will do work for you. If there isn't enough RAM, the computer will have to access the disk frequently to call up other parts of the application, and this slows your work down.
- (2) It allows you to hold more data in memory, which also makes your work run faster. For many large data files, such as graphics, spreadsheets, and databases, if the entire file cannot be brought into RAM, a swap file must be created on your hard disk where data can be temporarily stored and retrieved. For extremely large data files, this causes serious slowdowns.
- (3) It allows for multitasking. Multitasking is when you have more than one software application opened at one time. For example, when working on *Backwoods Home Magazine* during deadline, it is not unusual for me to have *WordPerfect*, *Photoshop*, *Excel*, the character map, the *Merriam-Webster Dictionary*, *QuarkXpress*, and my appointment program all open at the same time. I work more efficiently this way. But all of this is only possible because I have a lot (32 meg) of RAM. But 64 meg of RAM would be even better, especially with such memory-intensive programs as *Photoshop*.

So how much RAM do *you* need? It used to be that 4 megabytes was enough. But it is almost standard now to have a minimum of 16 megabytes of RAM. Your machine will run faster and smoother with a minimum of 32 meg and, if you generate graphics, you will welcome the extra RAM. Not only that, with 32 meg, you should be able to handle the next several generations of software as they come out.

What's disk storage and why's it important to you?

Most computers sold today have a minimum of three disk drives: a hard disk drive, a floppy drive, and a CD ROM. The one you will use most frequently is the hard disk. This is where you will store your application software (programs), your data (work you do), and it is the place where your machine stores the programs that actually boot it up, that is, start your computer. In this respect, it makes up the last third of the computer's "brain" because it is the "long term memory" of your machine. When I bought my first computer, in June of 1984, it didn't even have a hard drive. It had just two floppies. In those days, you could get by with two floppies. Today, you wouldn't even think of operating a computer without a hard drive unless you were insane.

The "size" of a hard drive does not refer to its physical dimensions (which today is almost universally 3½-inches wide). Size refers to how much data the drive will hold. They used to be measured in how many millions of bytes (megabytes) they could hold. Today, they are measured in how many billions of bytes—or gigabytes (GB)—they can store.

How large a hard drive should you get? The software applications are getting larger and larger. Games in particular are getting larger and larger because of the graphics they contain, and my son runs one that is 400 meg. And there is your clue. If you are heavily into computer games, or if you handle a lot of graphics files as we do here at the magazine, two gigabytes is almost too little because graphics files can eat that kind of space up very quickly. This is also true of very large databases used by some businesses. So if you are not going to generate huge graphics or database files, a 1.6 gigabyte drive is probably barely enough—but more is better and I wouldn't get anything less than 3.1 gigabytes so I can take care of future contingencies.

sive? Does the Pavilion model I bought have a cheaper CPU, cheaper memory, cheaper boards, cheaper hard drive...?"

"Actually, they use just about the same stuff in each line," he said.

"Then, tell me, what's wrong with this machine that should make me think I can't use it for a business just as other businesses, including the one

I work for, use the comparably priced clones?"

I think he said, "Nothing."

Later on, one of the techs who came out to look at the machine gave me the same story. I made him wish he hadn't started this line of reasoning, too.

I was at least a dozen calls into trying to get the problem resolved. I'm not sure I ever spoke with the same technician twice.

At the start of each call, the tech made me explain the problem from step 1, which meant, if I accidentally left something out, I was left wondering if I'd left out some key issue that could have been an important fact that would straighten everything out. Later I learned that each tech always had access to the history of the problems with my machine on the computer right in front of them.

One of the problems when dealing with tech support over the telephone is

you never know who you're talking to. If I pointed out that during a call I was previously given erroneous information, the best I would get was, "You didn't hear that from me." On the other hand, my friends, who had bought their computers locally, could talk to their local vendors face-to-face, if need be, and get a precise explanation.

I realize one of the advantages the big companies often tout is that they will come out to your house or business to service your computer. But, at least twice I was asked to go find other computers in the line to see if my CDs worked on them. And I did, going to several other cities to find dealers selling them. I realized I was now running errands for a Fortune 500 company. By the terms of their warranty, they should have been sending a guy to my house with another computer to run it himself.

Why did I do it? I had too much money tied up in my machine not to do as they asked.

In the meantime, some of my friends were having problems with their clones. But, one after another, a quick visit or phone call to the local dealer seemed to straighten everything out. For me, the months dragged on. There was no shop for me to bring my machine to, and HP seemed reluctant to send a technician out.

Three rules when choosing a computer

You have three points of contact with your computer: the monitor, the keyboard, and the mouse. Make sure you like the ones that are going to be on your machine, because you're going to spend too much time with them. Make sure the monitor is easy on your eyes, that you like the way the keys on your keyboard "click" (or don't click), and the way your mouse fits your hand. Don't decide, "Oh, I'll get used to them." Only settle for something you like from the start.

What is cache?

Computers tend to use some instructions more than others. Wouldn't it be great to be able to hold the 1st few instructions in some kind of short-term memory on the chance they'll be used again real soon, thus speeding up your work? This is exactly what cache does, and the more cache you have, the more you can take advantage of this feature.

But finally they did. Several times. But as I was to discover, if the “fix” the technician is assigned to do doesn’t solve the problem, he isn’t prepared to try another. He just leaves.

And, if the technician comes unprepared, as one did, he quietly disappears.

In the meantime, my friends’ clones were all working, the bugs having been ironed out by some local vendor, often in less than a day. No one was having significant downtime but me.

HP was wasting my time, along with my employer’s money and their own. I had guessed that HP had already spent more money on servicing me than the warranty money that was built into the machine’s cost. Still, we were no closer to a solution than we were since the first call.

All this waste was possible because, in spite of all my calls, no one was capable of making an aggressive decision. No one could fix the machine, but no one dared tell me to get lost.

Out of curiosity I began checking the specifications of my friends’ and coworkers’ computers. I discovered that their components were usually the same ones that were on the list of high-quality components I had com-

A question to avoid

When you’re shopping for a computer, the salesman is going to ask you, “What do you want to do with a computer?”

This is an incredibly dumb question. If I bought a computer for exactly what I need it for today, tomorrow, when the new software comes out, I’d already be falling behind.

Try to anticipate unexpected needs. Try to find out what future software changes are being touted in the magazines. Then always buy at least a little more than you think you need today so your machine will not become obsolete tomorrow morning.

A list of components worth considering

In compiling this list I read many magazines, including *PC World*, *PC Magazine*, *Home PC*, and I spoke with numerous friends and computer “geeks,” who have their own lists of parts and components that would make a first class machine at a reasonable price. I plan to have my next machine built from scratch and these are the components I will specify. (Be aware that the computer world is so fluid that this list may be different next week as newer components hit the market. When you’re ready to buy, read the magazines and talk with the “geeks.”)

Main processor: Intel Pentium MMX running at 133, 166, or 200 MHz .

Hard drive: A SCSI (pronounced “scuzzy”) hard drive and card. Don’t get SCSI on the motherboard. The best seem to be either the Quantum “Fire Ball” or Western Digital “Caviar” series. Don’t get less than 2.5 GB.

Motherboard: Intel Marl ATX systems board.

Fax/modem: U.S. Robotics Sportster Voice 33.6.

RAM: Micron or Japanese non parity, 72-pin, tin-plated EDO-DRAM. Get at least 16 MB. If you can afford more, get 32MB. This is not a place to skimp.

Cache memory: You shouldn’t settle for less than 256 kilobyte (KB) and 512 KB is a lot better. The more cache, the faster your machine will operate.

Video card: Matrox Millennium card with 4 MB RAM or Diamond Stealth Video 3D 3000 with 4 MB RAM.

Monitor: ViewSonic (I had bought the OptiQuest, made by ViewSonic, because it was rated high and reasonably inexpensive, but I wouldn’t buy it again because it makes text in *QuarkXpress* look fuzzy.)

CD ROM: Mitsumi, Sony, or Panasonic. Get a cheap one; good inexpensive DVD CD ROMs are coming and they are going to allow you to read and write to CDs. They’ll also make pretty good backup systems.

3½" floppy drive: Get a TEAC or other Japanese manufactured floppy drive.

Computer case: ATX case with an ATX power supply.

Keyboard: Keytronics 104 keyboard, or a standard IBM

Sound card: Creative Labs Sound Blaster AWE 32 PnP.

piled in January. For example, they got “hard MPEG” (Motion Pictures Experts Group) video cards, even though I didn’t; they got more RAM and cache on their video cards; my card was generic (as was my modem, sound card, etc.), but theirs was a brand name. Yet, as far as I could tell, none of these shortfalls saved me any money. Their machines still cost less than mine.

It didn’t seem possible, but it appears that America’s major corporations, buying in large lots, cannot buy the brand name components and get them into a low-cost quality machine

as readily as the little guy. My friends who had bought their machines from the local “mom and pop” dealers or computer shows had none of the problems I had.

HP finally resolved my computer problems by buying the machine back from me, and as I write this, I have gathered my notes from January and started my search again. Things have changed in four months. The 200 MHz Pentium is no longer king because the 233s and 266s have arrived. And I have also changed. I now know I want a machine with known quality parts and I know I want

The best time to buy

If you can afford a computer **right now**, don't let the flush of the money stampede you into buying the first computer that dazzles you—and believe me, it will—because, contrary to the old cliché, money will **not** burn a hole in your pocket.

Then, as soon as you've made up your mind on a system, **wait one more day**. (This advice counts for cars, couches, refrigerators, and a great many other expensive items. You'd be surprised how much this will save you.)

The sole exception to this rule that I can think of is: if you've already looked around and seen a lot, and you're at a computer show on a Sunday afternoon.

There are two good reasons for buying a computer at a computer show on a Sunday afternoon. First, if the display models aren't sold, the guy has to repackage them and take them back to his shop and he may have come from a long distance. He'll sell it for somewhat less of a profit not to have to go through this exercise. But more important is the second reason: the technology is changing so fast it can literally change from this Sunday to next Saturday, when he goes to his next show, and he could find himself losing hundreds of dollars instead of having taken a small profit.

to buy a clone from a local mom and pop shop so I can get problems resolved quickly and effectively.

I will also avoid the brand name computers because all too often they have proprietary components and/or boards which can make it impossible to upgrade the computer as newer and better after-market products come along.

I have gone to the big computer stores and asked questions. Surprisingly, the salesmen at the computer superstores haven't a clue as to what the components in their computers are. On the other hand, in the small stores and at the computer shows, the guys building the clones proudly display a list that specifies each component by brand name and model, and it's all the top name stuff I'm seeing in the magazines.

Am I suggesting you buy a clone? Yes. And here's the strategy for buying one. Read the computer magazines at the library. Find out what the highest rated components are. Find out if those are what the local guy is installing. If not, go to another store or find out why he's not doing it. Use the list I've included in one of the sidebars, if you wish.

Can you get burned buying a clone? Sure. What you're trying to do is give your money the best chance it can to work for you and, from this vantage point, that would be to spend it on a clone, made with the best components, from a local dealer you've heard good things about.

Would I buy anything from HP again? Yes. We use their world famous laser jet printers. HP's printer division makes the world's finest printers, and it is ready to stand behind them. I've bought three of their calculators and feel that anyone looking for a good reliable calculator would be foolish to buy anything but one of theirs. But their computer division may as well be a different company in a different country, and long after this division dries up and blows away, I expect their printers and calculators will still hold a major share of their respective markets.

Would I buy a brand name computer again? Not in the near future. Success is with the little guy who's self reliant, and who stands behind his product, service, and reputation. Δ

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Make a fully functional cold storage pit/mound and enjoy your garden's production all winter

By Armand O. Deblois

Cold stored fruits and vegetables are the next best thing to fresh-picked. Flavor and texture change little and nutritional value remains high. They keep for an amazingly long time. This and the great variety which can be stored make it a technique well worth using. Compared to canning, and even to freezing and drying, little is involved in preparation. This time savings greatly increases the ability to retain valuable produce. By cellaring a large percentage of the harvest, these other more expensive or time consuming methods can be reserved for where each is truly superior for a particular finished product—sweet corn frozen on the cob, canned relish, and spicy beef jerky, for example.

Cold storing also lengthens the time span in which foods can be processed for preservation by the other methods. Fruits and vegetables can be moved at leisure from cellar to dryer or canning kettle and to the freezer as this space is vacated. Even if you don't garden, cold storage can still be used to take advantage of low prices of the autumn cornucopia at local farms. Or better yet, it can provide an opportunity to benefit by participating more extensively in community supported agriculture. And as a bonus, we will see how certain roots (including the noble asparagus) can be tricked into producing delectable sprouts in the dead of winter.

A properly designed and well built root cellar is a marvel of appropriate technology. It soon returns its cost—and will ultimately return it many times over. However, in the beginning, the problem of the initial investment can be the main drawback to

opting for a walk-in unit. Many of us, therefore, have for a time resorted, with varying degrees of success, to the traditional pit/mound storage.

And even after having built a full-size walk-in facility, pits are still often useful in handling the overflow of a bumper crop. When properly done, their contents will not freeze (except in the far north or at great elevation) in even the coldest weather. Over most of the northern United States and southern Canada the temperature inside tends to average between 50 and 55 degrees F., being moderated by the earth below frost line. This, however, is not nearly cold enough to produce the maximum possible storage life for most kinds of produce which do best from just above freezing up to 40 degrees or so. It is also impossible with the old style "squirrel job" to regulate humidity or add warmth to counter extreme cold.

Other disadvantages of the traditional pit are the difficulty of access after a rain and hard freeze or a heavy snowfall, and having to take all of the contents of a particular installation at once due to the near impossibility of safely re-closing the mound under these conditions. All of these limitations are overcome by this new development.

Pit storage

The crux of the system is three fold:

1. A vertical wooden duct (Figures 1 and 2) around which the produce is arranged
2. The produce contained in sacks attached at intervals along a rope (Figure 3)
3. A well box (Figure 4) supporting an access hatch several feet above ground level.

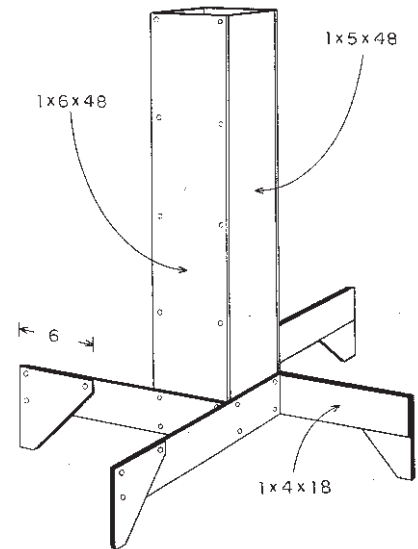


Figure 1. The vertical wooden duct

The central duct provides several key features. It serves variously to:

- (a) introduce cold outside air to the bottom of the pit when the temperature must be lowered
- (b) allow the installation of a hot or cold object when the temperature must be adjusted
- (c) admit a cloth sack containing a moisture absorbing, desiccant material to reduce humidity
- (d) channel water to the interior when humidity must be increased, and
- (e) to permit the temporary placement of a thermometer and hygrometer to monitor these variables.

The sack and rope arrangement allows easy access to a small amount of produce for consumption, or efficient removal and replacement of the entire contents for inspection. Spacing the bags a sufficient distance apart along the rope permits hauling each without having to disturb the one

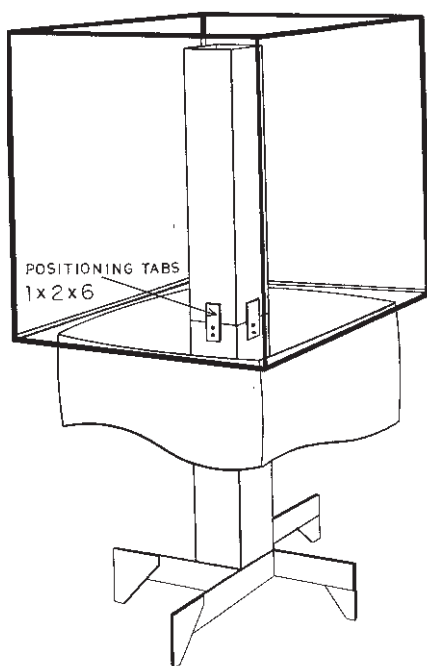


Figure 2. Internal cutaway view of well housing over the central duct

behind it. A combination of two easily tied and released knots readily fastens sacks to the main line.

Construction of such a storage involves digging a square hole encircled at ground level by a shallow, gravel filled, drainage trench, installing the lower stage duct assembly, positioning the well box, and banking it with earth (Figure 5). At storage time the produce is lowered into place, the upper stage is positioned, and the space between the top of the produce and the hatch is filled with sacks of insulation fixed to a separate long line system. Except for occasional inspection and monitoring, that's it.

Perfect control of such an installation—as with any root cellar—is a little bit science and a whole lot of art. But it's really not all that complicated or critical. The great advantages of this decentralized storage are that it permits tailoring conditions to perfectly suit a particular kind of fruit or vegetable and provides a built in safety factor against any errors. If detailed records are kept to help in pushing the

limits from year to year, it becomes a challenging as well as rewarding hobby.

Managing your storage

You must watch the weather like a hawk, taking advantage of cold nights to lower the temperature prior to storing your produce in the fall. Moisture may occasionally have to be added during dry spells or regularly in very dry climates. This applies to all but a few varieties which require dry conditions. When these are stored, the hole should be lined with plastic sheet if there is any appreciable amount of ground moisture. In any case, this will reduce the amount of desiccant which must be used. These sacks can be installed as necessary to remove the moisture inevitably brought in by the small amount of air which must be allowed to circulate. This air is needed to provide oxygen for respiration and remove the waste products of plant metabolism.

Heat may need to be added from time to time to maintain the warmer temperatures preferred by some varieties or to keep the contents from freezing in extreme cold. It's also important to inspect the contents every couple of weeks to remove any "bad apples." Happily this system makes short work of all this.

The cold storage treatment list in Table 1 will give an overview of what can be kept and for about how long under specific conditions. Tips for handling each and the general time for planting and/or harvesting have also been included. This schedule is for areas where the first autumn frost occurs around mid October and will require adjustment north or south. The varying number of days to maturity for specific varieties of a given fruit or vegetable must also be figured in. Planting is timed so each crop is fully mature but not overripe when stored. This challenge is part of what makes this game such fun. Each type of produce is put away as late in the season

as its tolerance for cold will permit. The protracted harvest season extends from the first light frost to just before the ground freezes solid, and even the onset of this condition can be postponed by heavy mulching. In any case, nothing should be stored away until after the weather has turned reli-

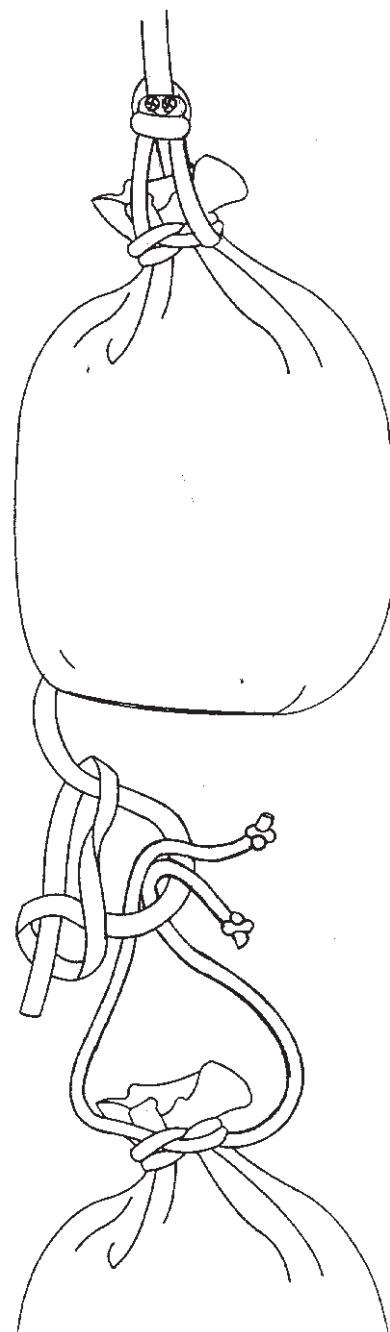


Figure 3. Bags strung together that are used to lower produce into—or remove it from—your cold storage pit

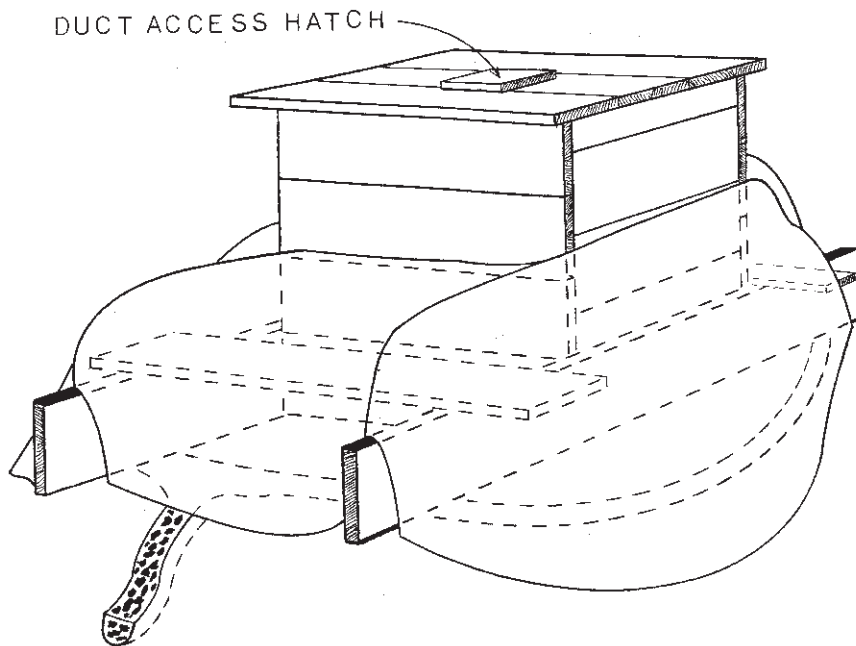


Figure 4. A well box that supports an access hatch above ground level

ably cold. Gardening for cold storage extends your land's potential by making use of space vacated by early and mid summer crops, and the later time of sowing and reaping extends your personal potential for satisfying work at self-provision.

Preparing produce

A garden fork is the most efficient tool for digging. Roots should be dug and fruits picked in the cool morning hours. The ground should be somewhat dry, this way there is less clinging earth, and what there is can be more gently removed without the need for washing. Any remaining light dusting of soil is harmless with final washing being done just prior to cooking. When circumstance necessitates digging from wet ground, clinging soil must be allowed to dry somewhat in the shade before removal.

Sometimes, harvesting must unavoidably be done later in the day. In this case, everything should be kept overnight in a cold sheltered place to remove every possible degree of remaining field heat before storage the following morning. This is important

because warm produce will continue to lose moisture even in a highly humid environment.

As with most ventures, location is important. Installations should be as close as possible to the house for convenience, in well drained high ground, and on the cooler north side of a large sheltering object such as the house,

garage, shed, or barn. The opposite and warmer south side would be a better choice in the far north. Considering location on a larger scale, any place where the average winter temperature is 30 degrees F. is ideal. However, cold storage is still practical as far south as to where the average is around 45 degrees, but a shorter storage life must be expected.

If you are new either to gardening or to your area, statistics of first frost, killing frost, hard freeze, and average winter temperature can all be had from the local weather bureau or agricultural extension service. However, these dates can vary due to micro climates produced by terrain, so your own written records, or those of a dedicated gardening neighbor, will prove more accurate. Another important consideration, the depth of the water table, can be provided by a local well driller. It should be at least ten feet below the bottom of your excavation, and the lower the better.

It is best not to store fruits and vegetables together because gas given off by fruits can cause vegetables to ripen sooner and sprout or blanch, and the strong odor of vegetables can taint the delicate flavor of fruits. Everything

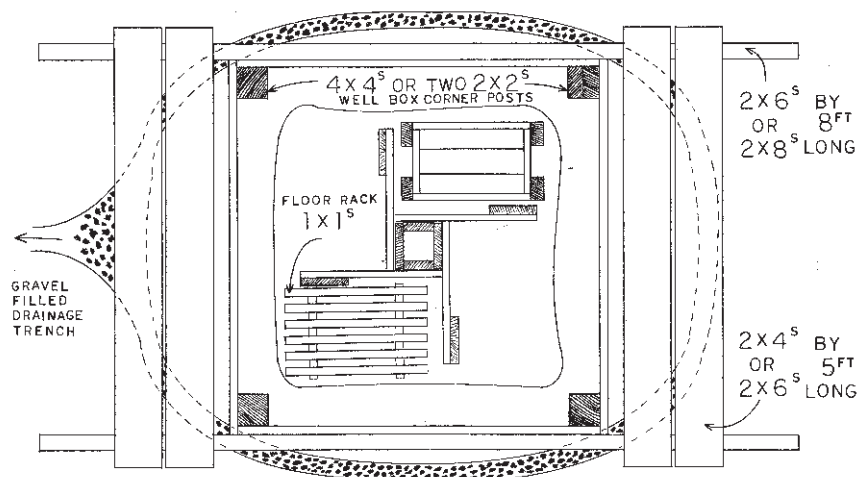


Figure 5. Top view of the storage pit: a square hole encircled at ground level by a shallow, gravel filled, drainage trench. The lower stage duct assembly is installed, the well box positioned and is banked with earth.

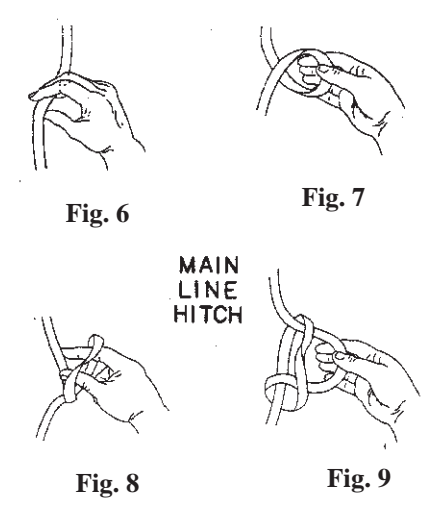


Fig. 6

Fig. 7

MAIN
LINE
HITCH

Fig. 8

Fig. 9

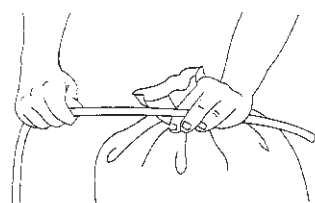


Fig. 10



Fig. 11

MILLERS
KNOT

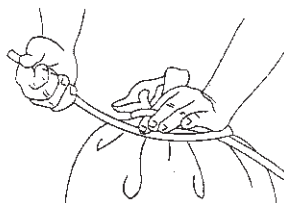


Fig. 12

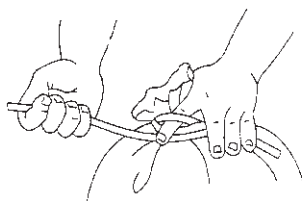


Fig. 13

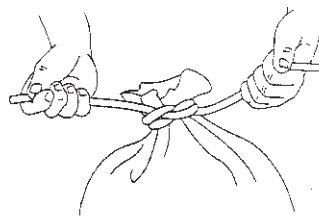


Fig. 14

Figures 6-14. Tying a main line hitch and making a millers knot.

should be handled gently and as little as possible. Immediately trim tops to prevent their wilting or drawing vitality from the roots. Beware of anything sharp—things like the protruding ends of staples, nails, wire and splinters, as well as your own fingernails—that can damage your produce. And again, put off the harvest as long as possible while yet leaving a margin for the unexpected. This is important mainly

because cold induces the concentration of sugars and starches thus replacing water which would more easily be lost, and so shorten storage life.

The roots of the plants specified in the cellar gardening list will produce crisp, living sprouts for salads to complement the cooked vegetables of winter meals. This a good way to make use of specimens in some way not fit

for long storage or those going soft by late season. After being packed closely in soil in wooden crates or other suitable containers, the roots are exposed to freezing conditions as they would be in a natural setting. When later introduced to the warmer environment of a cellar or unheated room, this artificial spring will induce them to sprout. Though not quite as vitamin rich as when grown in light, they are a welcome mid-winter treat. Some varieties such as dandelion, usually on the bitter side, are more mildly flavored when sprouted in darkness, and blanched witloof chicory is a real delicacy.

The drawing figures 6 through 9 show how to quickly make a hitch at any point along the main line for attachment of the individual sacks. The neck of each sack will be secured by a short length of rope tied in a millers knot as illustrated in figures 10 through 14. To tie this knot twist and pinch the gathered neck of the sack between the thumb and first finger of your nonprimary hand. Hold about a third of the rope as shown in figure 10, grasping the long end with your other hand. Bring it around, temporarily pinning it between the sack and the heel of your other hand as in figure 11. Now reach back around and bring the end of the line over to form the first complete turn seen in figure 12. In the same way make a second turn as in figure 13. Then hook the rope with the tip of your captured finger, as seen in figure 13, and pull it through this space far enough so that you can bring it all the way out with your free hand. At this point, snug it slightly then release your grasp on the bag neck as you grab the original rope end with this hand. Finally both ends are evenly pulled to complete the tie as seen in figure 14. Each of these free ends is now tied in a simple overhand knot and it is these knobs that will be captured in the hitch in the main line.

The long planks attached to the well box serve to distribute weight over a larger area. One or more shorter

Cold storage treatment list

Very Cold (32-40 degrees F.) and **Very Moist** (90-95 % relative humidity (RH))

Beet: Keeps into March. Plant in late June or early July. Harvest before severe frost. Cut tops one inch from bulb, do not cut tap root.

Carrot: Keeps until late May or early June. Plant in late June or early July. Harvest before the ground freezes hard. Break off tops where they join the root.

Celeriac: Keeps until late March. Plant in late May. Harvest before frost. Remove the long, fine rootlets but don't cut close to the main body. Trim the tops to one inch.

Celery: Keeps into January. Plant in late April or early May. Harvest before severe frost. Keep roots moist.

Chinese cabbage: Keeps until late February. Plant in July. Harvest before severe frost. Remove outer leaves. Keep roots moist.

Horseradish: Keeps until April. Plant in May. Dig large roots just before the ground freezes.

Kohlrabi: Keeps until late January or early February. Plant in July. Harvest before severe frost. Cut off leaves and root. Store only those bulbs three inches or less in diameter.

Leek: Keeps until spring. Plant in April. Harvest before the ground freezes solid. Keep roots moist.

Hamburg-rooted parsley: Plant as soon as the ground can be worked, otherwise treat as carrots. Parsnip: Keeps until June. Plant in May. Harvest after several good frosts for best flavor. Dig carefully to avoid damage and get the full length of the root.

Winter radish: Keeps until February. Plant in late July or early August. Harvest before severe frost. Trim tops to where they join the root.

Rutabaga: Keeps until February. Plant in late June or July. Harvest before severe frost. Wax with beeswax to retard drying.

Salsify: Keeps until March. Plant in May. Harvest after frost for improved flavor.

Scorzonera: Treat the same as Salsify.

Turnip: Keeps until April. Plant in late July or early August. Harvest before a heavy freeze, ideally choosing those no larger than three inches in diameter. Cut off all but one half inch of the tops.

Very Cold (32-40 degrees F.) and **Moist** (80-90 % RH)

Apple: Keeps until spring. Pick mature, firm, unblemished, late ripening fruit.

Cabbage: Keeps until March. Plant in May or early June. Harvest only solid, heavy, unsplit heads for storage. Pull the heads roots and all and remove loose outer leaves.

Citrus: Keeps up to two months.

Cranberry: Keeps up to three months. Keep them cool (36-40 degrees F) and moist.

Grape: Keeps up to two months at 40 degrees F. and 80% RH. Cut vine ripened fruit and spread one bunch deep in trays.

Pear: Keeps until late December. Pick when mature but not fully ripened, when skin first turns from green to yellow-green and fruit separates easily from the tree.

Potato: Keeps four to six months. Plant in late May or early June. Harvest in cool weather up to six weeks after the tops have dried. Cure for two weeks before storing by spreading the tubers in a protected place where the temperature is 60 to 75 degrees.

Quince: Keeps until spring. Let ripen on the tree until they turn yellow.

Cold (35-40 degrees F) and **Dry** (60-70% RH)

Garlic: Keeps until spring. Plant large individual cloves at this time. Harvest right after the tops die back. Cure in the sun for several days to harden their skins. Clip off roots close to the bulb. Snip off the tops.

Onion: Keeps until spring. Plant in April. Harvest after the tops have fallen over. Pull on a dry day and cure in the sun for a week. Cut off the tops to a one inch stub and dry in a shady place for another two or three weeks. Do not store bulbs with a thick neck.

Nut: Cure nuts in a cool dry place for a couple of weeks. Store in the shell to retard oxidation of nut oil.

Cool (50-60 degrees F.) and **Dry** (60-70% RH)

Winter squash: Keeps until spring. Plant in late May. Harvest when the skin is so hard your fingernail can't puncture it. Cure in the sun for a couple of weeks to further harden the rind, bringing them indoors in rain or frost. Leave stems on or paint the scar and any abrasions with beeswax.

Pumpkin: Treat like squash except for a dryer (70-75%) relative humidity.

Sweet potato: Keeps until spring. Plant in early June. Harvest as soon as frost has killed the vines. Lightly brush the clinging soil after it has had a few hours to dry, handle gently. Cure for two weeks in a warm place, covered with a damp but well wrung out towel to retard moisture loss during this process.

Cellar gardening list

Asparagus: Dig large roots two or three years old from beds that need thinning. Maintain at 60 to 65 degrees F. Keep well watered.

Beet: Use those that are misshapen or for some other reason are not good candidates for long term storage and any found to be going soft later in the season.

Cabbage: Dig roots of plants that have previously been harvested. They can still sprout many tasty leaves.

Carrot: Excellent salad material can be grown from deformed specimens.

Celery: Roots of plants that have already been harvested can still produce continuously if only the outer leaves are picked.

Collard: Roots will produce a continuing supply of leaves.

Dandelion: Dig large roots and treat like Endive.

Endive: French or Belgian, also known as witloof chicory. Dig before the ground freezes, taking care not to break the brittle root. Trim the tops leaving only the central inch long, light green leaves. Shorten the roots to eight or nine inches and pack closely in soil to the crowns. Harvest sprouts by cutting close to but without damaging the root crown. A second and possibly a third harvest can then be had. Maintain at 50 to 60 degrees F. They will sprout more readily after experiencing several good freezes.

Kale: Roots that have been producing in summer will continue in winter. Pick only young leaves as older ones become bitter.

Kohlrabi: Use misshapen or oversize roots.

Parsley: Harvest only the outer leaves of this nutritious garnish and continued growth will proceed from the center.

Parsnip: Treat like beet for a crop of edible sprouts.

Rhubarb: Must experience freezing before it will sprout. Dig strong, large two- or three-year old roots that have not been harvested in the spring. Maintain at 50 to 60 degrees F. Tender pink stalks will sprout in about a month. These roots will yield a couple of pounds each. Never eat the leaves, they are toxic. Rutabaga: These will produce salad material all winter long.

Turnip: Has the same potential as rutabaga.

planks on each of two access sides help support the weight of a person to prevent compacting most of the insulating earth. In regions of extreme cold it would be advantageous to mix into the earth used for banking the well box, some natural insulating material such as straw or dead tree bark. A mulch over this earth will prevent erosion and add even more insulation.

At storage time, as the sacks are lowered, they must be manipulated into position. A canoe paddle, used gently, is the best tool for this job. The produce sacks should come up no higher than the top of the lower stage of the duct, which should be at ground

level. Sacks of insulation, similarly attached to a second long line, are then stuffed into any space remaining between the produce and the wall of the excavation. The upper stage of the duct must then be wedged into the support structure created by the four wooden tabs on the lower stage. Generously beveling the inside edge corners of these tabs will help guide the upper stage into place. The remaining insulation sacks are then spiraled around into place until the well is filled. The well box should be constructed as tightly as possible, but any slight gap between it and the lid is desirable in order to permit a small amount of air exchange. If you've

done too good a construction job, a small diameter nail can be placed between box and lid to provide this gap.

A small hatch in the center of the lid is handy for when it is only necessary to have access to the duct for monitoring or adjusting conditions. Monitoring is done by installing a small thermometer and hygrometer attached to an old broom handle. If the inside dimensions of the duct are just greater than the diameter of a plastic two liter soda/pop bottle, one or more of these containing hot water is a convenient way to add warmth. The neck is perfectly shaped for attaching a cord. Tying each end of a double length creates a convenient handle and balances the jug. In mild winters these same containers can be installed frozen to lower the inside temperature. When humidity must be reduced, muslin bags containing ordinary cat box litter (unscented) will do the job. Another desiccating material, silica gel, available at craft shops, although more expensive initially, can be reconditioned again and again by slow oven drying. These sacks can be weighted with a fist size stone to aid installation. Also, for this purpose, the inside surfaces of the duct need to be sanded fairly smooth. When humidity must be increased—a more common condition—simply pour a small amount of water down the shaft and check on the effect the next day or so. An aluminum foil pie tin filled with sand and placed directly below the shaft makes a good receptacle and evaporator of this moisture. Four racks made of wooden lath, of a size to cover most of the pit bottom, will keep the produce sacks raised a couple of inches for good air circulation. One final design detail, small homemade wooden cleats, strategically located, conveniently secure the various rope ends.

As for the size of these installations, a well box four feet square is a convenient size when working with dimension lumber and requires an excava-

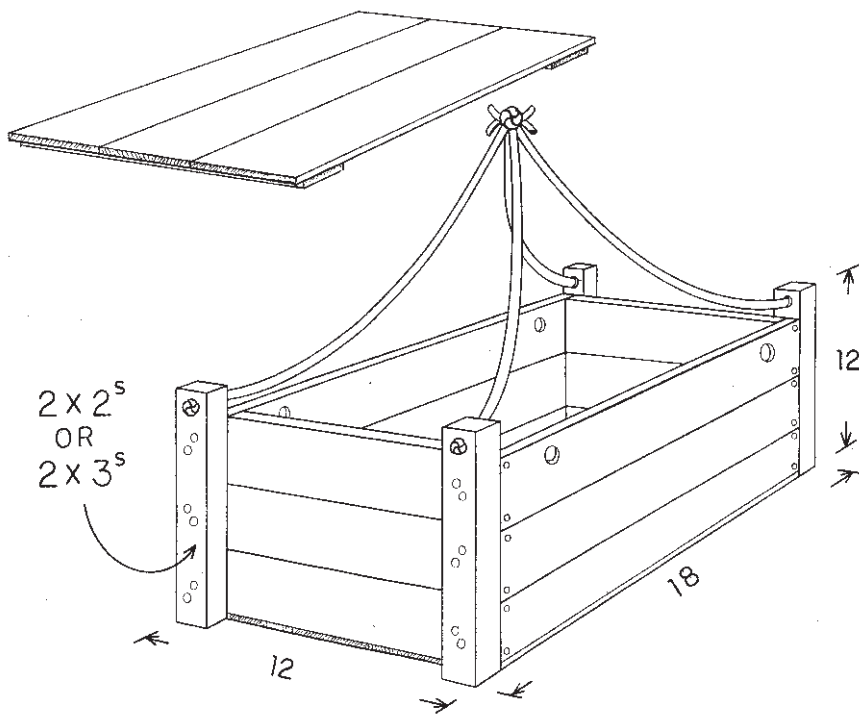


Figure 15. Stackable crate for large items or sprouting

tion three feet on a side. Four feet is a good hole depth and well box height. This depth will reach below frost line in most places and this height will, even after being banked with earth and mulch half way up, remain above snow line in most winters.

Perforated plastic bags are best for holding varieties which require high humidity. The larger bread wrappers can be pressed into service for quantities of a few pounds each and for small containers of insulation. They can efficiently be ventilated to any required degree by folding and re-folding until only two or three inches square and punched a half a dozen times more or less with a leather punch. The cheaper models costing six or eight dollars are plenty good enough for this use and can be bought at many craft or hardware stores. Roots of some varieties (cabbage, leek, and celery), that need to be kept moist, can be bagged in unvented bags and secured with string or rubber bands. Open mesh bags are best when

dry conditions are wanted. Each bagged specimen should ideally be separated by something like moss or sawdust to cushion them. Best of all is cattail down, plentiful and free for the taking in the fall. These materials are also used in the insulation sacks.

To hold roots for sprouting, four wooden crates (Figure 15) can fit between the struts supporting the duct shaft. Like the sacks, they can be stacked several tiers high on a long line. Several holes high on the sides provide ventilation. Braided nylon rope is best for this application. It handles and grips well. Quarter inch is adequate for all but huge sacks of heavy produce and three eighths is a better choice for heavy earth filled crates and much easier on the hands.

For the definitive word on cold storage see the book *Root Cellaring* by Mike and Nancy Bubel. It contains a wealth of information including the fine points of designing and building full size installations. Δ

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Seven secrets of Dutch oven cooking

By Roger L. Beattie

Squatting heavily in dank basements, drafty attics, and dusty, cluttered garages, these three-legged hulks from a bygone era wait impatiently to release their treasures. Until then, they are pitted by time and tarnished by neglect. For those who will uncover the mystery, their gaping caverns can once again be brimming with magic.

From the birth of our nation, Dutch ovens have been an integral and versatile part of Americana. Sadly, today's high-tech hustle-and-bustle lifestyle has all but forgotten the art of "leather-glove cuisine." The coal-black cast iron ovens appear outdated, unfriendly, and forbidding. Interestingly however, with seven simple secrets revealed, the beginning camp cook and the consummate backyard chef can utilize these forgotten friends to produce a marvelous and unforgettable variety of succulent delicacies.

Dutch ovens owned by cooks who understand their subtleties are kept in places of honor, sanctuaries reserved specifically for them. On the other hand, ovens owned by cooks who can't seem to keep the potatoes from burning to the bottom or who can never get the chicken to look anything but a pasty white, are quickly relegated to some obscure location where they will be "out of the way." For the unsuccessful current user, the interested but uninitiated, or anyone who just wants to cook better, the seven secrets outlined below will provide a firm foundation for the creation and consumption of mouth-watering Dutch oven meals fit for even the most discriminating palates.



Secret 1: Choosing wisely

When deciding on a Dutch oven, there are a few important guidelines to keep in mind. A common question is, "Should I buy cast iron or aluminum?" Both have some advantages. Aluminum Dutch ovens weigh about one-third less than their cast iron counterparts. They require no curing, and, like the cast iron pots, can be used over open fires, buried underground, or used with coals or briquettes. However,

aluminum Dutch ovens do not retain heat as well nor distribute it as evenly as cast iron. The flavoring of foods produced will also be different. Aluminum ovens sometimes give a chalky flavor to foods, whereas iron ovens give a smoked flavor to foods. Most Dutch oven aficionados use only cast iron ovens.

When buying a cast iron Dutch oven, whether new or used, look carefully at these five important areas:

- 1. Only buy Dutch ovens with legs.** Some are manufactured with flat bottoms and are far more difficult to use. The three legs should be cleanly attached to the bottom of the oven, never cracked, bent, or broken off.
- 2. Check the fit of the lid.** It should lie flush with the lip of the oven all the way around, with no significant gaps.
- 3. Check the casting, or thickness, of the metal,** especially around the rim. There will be some inconsistencies. However, areas that are 15% (or more) thicker or thinner than the remaining areas will produce hot or cold spots during cooking and cooling. This variance in thickness will also make the oven much more likely to crack or warp.
- 4. Make sure the lid has a loop handle,** cleanly attached to its center.
- 5. Check the bail (the wire handle)** attached to the oven itself. It should be easily movable and strong enough to use for carrying or hanging a heavy pot full of stew without difficulty.

If these five areas pass inspection, you've got a good Dutch oven.

Another purchase consideration is the size of the oven. Dutch ovens range in size from 8 to 22 inches in diameter. The most commonly used are 10-inch, 12-inch, and 14-inch ovens. The larger ovens hold more if you're cooking for large groups, but they are huge, heavy, and hard to handle. If you only buy one oven to get started, pick a 12-inch. Later you can add a 10-, 14- or additional 12-inch ovens.

Secret 2: The miracle cure

Once you have an oven, it must be *cured*. This process will keep your oven from rusting and produce an interior coating that will prevent food from sticking. The process is

very simple. If you have an old rusty oven, scrub it well and use a fine-grade sandpaper to clean up and expose the entire surface, inside and out. Once the metal is exposed—or if you are curing a new oven—wash the entire oven well with hot soapy water. This will remove the waxy coating from a new oven and the fine metal dust remaining in an old reconditioned one.

Next, heat your Dutch oven, with the lid on, to about 200° in the oven in your home. (You can also do this in a fire, with coals or briquettes.) While the oven is hot, pour or drop in a small amount of oil, shortening, or lard, and while wearing oven mitts or heavy leather gloves, use a clean cotton cloth to wipe the entire surface well, inside and out, to coat it with the shortening, oil, or lard. When the oven is coated, heat it to 350° for an hour. If you do this in your house, expect some smoke. After an hour of heating, let the oven cool slowly. Force-cooling a cast iron oven by putting it in a freezer, snow bank, or outside during a cold rain, can crack or warp it.

Once you have your oven cured, it is ready for cooking. However, after each subsequent use and cleaning, you maintain and strengthen the cure by wiping a very light coat of oil, shortening, or lard over the dry, warm oven.

The proper cleaning of a Dutch oven is a favorite topic of many cast iron cooks. Some say that excess food must be burned off by turning the oven over in a fire, or by putting the lid on and heating the oven until the food residue inside is burned to a black crust or dust (like a self-cleaning household oven). Others claim it is a mortal sin to use any kind of soap when cleaning Dutch ovens. All, however, agree that you never scrape or scour a Dutch oven. Using metal utensils or wire scrubbers or brushes can remove the curing and allow food to stick in the exposed areas unless the oven is re-cured.

Most frequent Dutch oven users have found that wiping out excess food with a paper towel, then washing the pot with hot soapy water and a sponge will produce a clean and sanitary oven. Remember, after cleaning, be sure to dry the oven completely,



then wipe a light coat of your chosen oil over the entire surface of your oven, inside and out, legs included, using a paper towel or cotton cloth. Soon your oven will have a beautiful dark brown or black coat that will be amazingly easy to keep clean.

If you use too much oil while curing or after cleaning your oven, it will become apparent the next time you use it. Each time you take out the oven, remove the lid and smell the inside. If it smells a little rancid, you used too much oil, but don't worry. Just heat up the oven on your stove or over a fire to allow the oil to melt down and puddle in the bottom of the pot. Wipe out the old oil with a paper towel and you're ready to go. There is no need to clean the oven again before using.

Secret 3: Power tools

You will need all the usual utensils required for cooking, such as spoons, forks, spatulas, etc. However, when you pick utensils to use with your Dutch ovens, choose items made of wood, plastic, or Teflon. Metal utensils tend to scrape off the curing when hungry eaters try to dig the last bite of food out of the oven. If areas do get

scraped to the bare metal of the oven, you'll need to re-cure it.

In addition to the utensils you are familiar with, there are other tools unique to Dutch ovens which will make your efforts safer, easier, and more successful.

1. You will need a pair of loose-fitting leather gloves long enough to cover your wrists. When leather gloves get hot, loose ones can be flipped off easily and quickly. Tight hot gloves will stick and burn you. Some people prefer welding gloves (gauntlets), but any good thick leather gloves should do fine. Wear these gloves when working with your ovens. They will prevent numerous painful burns, dropped ovens, and ruined meals.

2. Another tool you will need is a lid lifter. There are a number of lid lifter designs to choose from. The most typical is a wire-handled hook. Many of these hooks have a small bar welded horizontally a short distance up the handle from the curve. This is to keep the lid from tilting from side to side while being lifted. Hook lifters can be very ornate or simple hay-hook-like designs. Probably the surest lid lifter is a more recent design which combines the hook with a three-legged brace. The three legs fit flush against the top of the lid, and the hook goes down the middle of the legs and under the lid handle. With this type of lifter, the hook is pulled up to tighten the lid against the three legs of the brace. This design is steady and excellent for keeping coals and ashes on the lid from accidentally becoming additional garnish for the dish being prepared.

3. Lid holders are also a necessity. This tool may be anything from a clean brick to a three- or four-legged wire rack. It is used to keep hot lids off tables and counter tops or out of the dirt when the cook is adding spices or checking the progress of meals cooking.

4. Long-handled tongs are an invaluable addition to your Dutch oven tools. Even a cheap stainless steel pair will last indefinitely. Tongs are used to place, add, or remove coals as necessary. Attempting to position coals with sticks, pliers, etc., often results in poor placement, burned hands, and generally miserable experiences.

5. A small shovel is also important. This small tool, a garden shovel or fireplace shovel, is used for moving coals from a fire, digging a long-cook pit, or burying excess extinguished charcoal.

6. The last special tool you will want to consider is a whisk broom. The broom is used to brush the dirt, ashes, etc., off the lid and side of your oven in preparation for serving. This makes the possibility of ash-flavored beans remote and cleans up the ovens nicely to prevent carrying dirt or charcoal into your camper, cabin, tent, or kitchen.

Secret 4:

A fire in the belly

Here's a secret that even most seasoned outdoor cooks don't know: You can prevent burned bottoms, raw tops, and dried-out foods by using properly sized and spaced coals to control the interior oven temperature. Virtually all baked goods can be baked successfully at 350°, which is the ideal temperature for a Dutch oven. To establish and maintain this temperature, the first thing to remember is to use coals from a fire that are roughly the same size as charcoal briquettes.

Or, for more consistency, use briquettes. Charcoal briquettes will burn longer and more evenly than coals from a fire. Use the best briquettes you can afford. There is a difference in quality, and the more expensive brands are generally worth the additional cost.

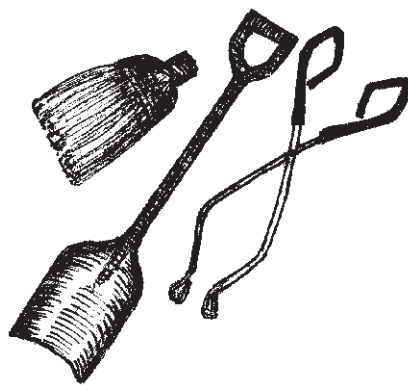
The number and placement of the coals on and under your oven is criti-

cal. The optimal number of coals used for any oven is based on its diameter. For example, if you are using a 12-inch oven, you will need two coals per inch, a total of 24. More coals will likely burn your food and less may necessitate too long a cooking period. To determine how many coals go under and how many go on top, remember the magic number 2:

- 2 coals per inch of oven diameter
- place 2 more coals than the oven size on the lid, and
- place 2 less than the oven size under it.

Example: For a 12-inch oven, $12 \div 2 = 10$ coals under the oven, and $12 + 2 = 14$ coals go on the lid, for a total of 24. The same formula applies to all ovens. A 10-inch oven should have 8 coals underneath and 12 coals on the lid. A 14-inch oven should have 12 coals underneath and 16 coals on the lid.

The placement of the coals is also an important part of proper heat regulation. The proper layout for coals or briquettes under the oven is circular. Coals should be approximately one inch apart in a circle under the oven. Never place coals directly under the center of the oven. If you do, you will create a hot spot and burn whatever you are cooking. By placing the coals in a circle, the natural conductivity of the oven will distribute the heat evenly and effectively.



The coals on the lid of the oven should also be placed evenly in a circle along the flange of the outer lid. However, four of the coals should be placed toward the center of the lid, two on either side of the handle. This coal placement will produce an even, consistent temperature within the oven of approximately 350° and maintain that heat for up to two hours.

In the event that you need to generate a higher temperature inside your oven, "cheat up" the coals. Additional coals placed two at a time, one on the lid and one under the oven, will add another 50°. Two additional coals top and bottom would bring your oven's temperature up to 450°. It is extremely rare to need a temperature of 450°, and you should never need one higher than that.

Secret 5:

A cut above

Meats prepared in a Dutch oven are delectable. They have a flavor and aroma you will never duplicate using any other cooking method. While the taste is always exquisite, some Dutch oven users have difficulty producing a visually appealing meat from inside the steamy oven. The secret is simple: regardless of the spice and flavorings you use on any meat or poultry, always brown the meat first.

To brown the meat, place some oil, bacon, or any fatty item in the hot oven to produce a good covering of oil on the bottom, heat the oven, then put the meat you want to cook in the oven and sear or brown it well. This will seal in natural juices and provide the outer texture and color more typical of grilled or fried meats. Once the meat is well browned on all sides, drain off any leftover fat drippings, add whatever seasonings you like, put on the lid, and cook the meat for 30 to 35 minutes per pound of beef, pork, or lamb, or 25 to 30 minutes per pound of poultry.

Secret 6: Garden pride

Garden vegetables are a magnificent addition to any Dutch oven dinner. Most Dutch oven vegetables are prepared in a sauce of some type, but they may be steamed or boiled as you would on a traditional stove. However, if you choose to bake or roast Dutch oven vegetables, they should cook for approximately three minutes per inch of oven diameter. A 10-inch oven full of squash should cook for about 30 minutes, a 12-inch oven full for 36 minutes. Vegetables to be cooked in sauces, such as sour cream potatoes, broccoli in cheese sauce, or new peas and potatoes in white sauce, should be brought to a rapid boil first, the water discarded, the sauces added, then baked for the proper time noted for other vegetables.

Secret 7: If you knead the dough

Good Dutch oven breads seem to be a rarity. However, marvelous corn breads, biscuits, rolls, and sourdough loaves are surprisingly easy to perfect in the old black pot. The larger the oven the better when it comes to cooking breads. A 14-inch oven serves nicely to produce three loaves of bread or up to three dozen rolls or biscuits. To successfully brown breads, however, you must alter the cooking process for the last five to eight minutes of the traditional 25-30 minute, 350° baking time.

First, put a light coat of oil on the interior of a cool oven (including the lid), and let the rolls or bread complete their final rise in the oven prior to applying the coals. Second, place the oven on the coals with the proper number of coals on top as noted earlier. (Remember: no coals directly under the center of the oven.) Third, when there are five to eight minutes left in the cooking time, lift the lid, lightly brush the tops of the breads

with butter, replace the lid, then take all the coals from under the oven and distribute them evenly on the top. With all the heat now on the lid, check the bread every couple of minutes until you think it looks perfect. After brushing the coals and ashes from the lid, remove it, tilt the oven over a bread board, and your perfect bread will gently fall out.

Now that you know the seven secrets, here is a trio of fabulous tried-and-true recipes you can easily make with your old, new, or reincarnated Dutch oven.

Prairie chicken

Using the correct number of coals under the oven, brown both sides of enough clean, uncoated chicken pieces to cover the bottom in a hot Dutch oven with a bubbling $\frac{1}{4}$ inch of oil. When the chicken is browned to your liking, remove the excess oil from the oven and discard. Season the chicken generously with the following pre-mixed coating:

2 Tablespoons each, parsley flakes & thyme
1 Tablespoon each, marjoram, oregano, celery salt, & rosemary
1 teaspoon each, garlic salt, onion salt, ginger, ground black pepper, sage, & paprika

Put lid on oven, arrange coals as noted earlier (top and bottom) and cook for 45 minutes to one hour.

Italian zucchini

Coat and marinate zucchini or summer squash (one per person) for 30 minutes in a mixture of $\frac{1}{2}$ olive oil and $\frac{1}{2}$ lemon juice (A half cup of each will coat enough zucchini for 20 people.) Place one layer of the marinated vegetables in the bottom of the Dutch oven. (A 10-inch oven works great for up to 15 people.) Sprinkle salt, pepper, and a good coating of

grated Romano cheese over the layer, then repeat the process, layer upon layer, until all the zucchini is used or until the oven is almost full. Sprinkle extra Romano cheese on the top layer. Place the lid on the oven and cook as noted earlier with the proper number and placement of coals. Cook for 30 to 35 minutes. This is a marvelous tart and tasty vegetable treat, guaranteed.

Trailside beans

$\frac{1}{2}$ pound bacon, sliced in small pieces
 $\frac{1}{2}$ pound ground beef
 $\frac{1}{2}$ diced onion
1 diced red bell pepper
1 diced green bell pepper
Two 33-oz. cans of pork and beans
 $\frac{1}{2}$ cup brown sugar
 $\frac{1}{4}$ cup of Worcestershire sauce
2 Tablespoons of white vinegar

Cook bacon and ground beef well in a 12-inch Dutch oven. Use 24 coals all on the bottom to start, then separate and place the coals as noted earlier during the baking stage. Before removing excess oil, sauté diced onion, diced red bell pepper, and diced green bell pepper with the meats until the onions and peppers are soft. Drain off excess oil. Add pork and beans, brown sugar, Worcestershire sauce, and white vinegar. Stir well, place lid on oven, and cook with repositioned coals for 90 to 120 minutes.

Check for moisture content every 15 to 20 minutes. (Some ovens allow too much moisture to escape.) If there is not a soupy layer of liquid covering the beans, add water, a little at a time, and stir to maintain the moisture content.

Eat this with hot biscuits and jam, and you'll understand why cowboys always looked so happy on those long, hard, dusty cattle drives. Δ

www.backwoodshome.com

Comfrey is a powerful healing herb

By Anita Evangelista

Herbs are nature's healing substances, cultivated and collected from the wild since antiquity. The use of healing herbs continues today for only one reason: the stuff has potency, it works, it is 100% hands-on home-made medicine.

The large, hairy leaves and mucilaginous, woody roots of comfrey have acted as a favorite remedy for many ailments since the Roman Empire ruled the known world. The great herbalist of the Middle Ages, Culpeper, believed that comfrey hastened the healing of fractures—indeed, the other names it has been known by include “knit-bone” and “boneset.” During the Dark and Middle Ages, it was considered a superior “vulnerable,” a term used for plants that helped speed healing of battle wounds.

Modern research has established that comfrey is high in calcium, potassium, phosphorus, and trace minerals. The fresh leaves are an excellent source of Vitamins A and C. It also has a unique component for plants —Vitamin B12; it is the only land plant known which contains this component. It is a good source of the amino acid *lysine*, a substance lacking in most vegetarian diets.

Its healing properties come from *allantoin*, a chemical which does, in fact, speed the growth of new tissues.

Comfrey has been under experimental study for nearly a century by the Henry Doubleday Institute in England. This wonderful herb makes one of the finest garden composts known. The Doubleday Institute has produced tomato plants which had to be harvested from ladders, when chopped, composted comfrey leaves were used as the main fertilizing agent. This Institute has also found that a mature stand of comfrey can yield ten tons of hay per acre, when harvested every three weeks during the growing season.

Livestock species differ in their taste for comfrey. In England, it was found that cattle did not prefer comfrey as a hay, or as a green—even though when it was added to dairy

cattle feed, the cows produced more milk. However, it is relished by goats and sheep as a fresh green, and will be eaten as hay when mixed into feed or hay rations. Caged rabbits readily eat comfrey as a snack. Comfrey does not cause bloat or scours in young animals.

One farmer experimented with low-cost production of a pair of feeder pigs, using fresh comfrey leaves along with roots from Jerusalem artichokes as the animals' only foods.

After five months, the 50-pound piglets had grown to 200-pound processing weight. Neither showed any ill effects from their unusual diet. The meat was said to be excellent in flavor.

Growing your own

Comfrey's Latin name is *Symphytum Officinale*. There are hundreds of varieties of *Symphytum* around the world, each variety having slightly different growth habits, some being more leafy, faster growing, better tasting, of increased flowering, or having greater healing properties. Comfrey is not commonly found in seed catalogs, though, and it's impossible to predict how long comfrey will be available legally as seeds or root cuttings. So far, the FDA has not attempted to regulate the plants themselves.

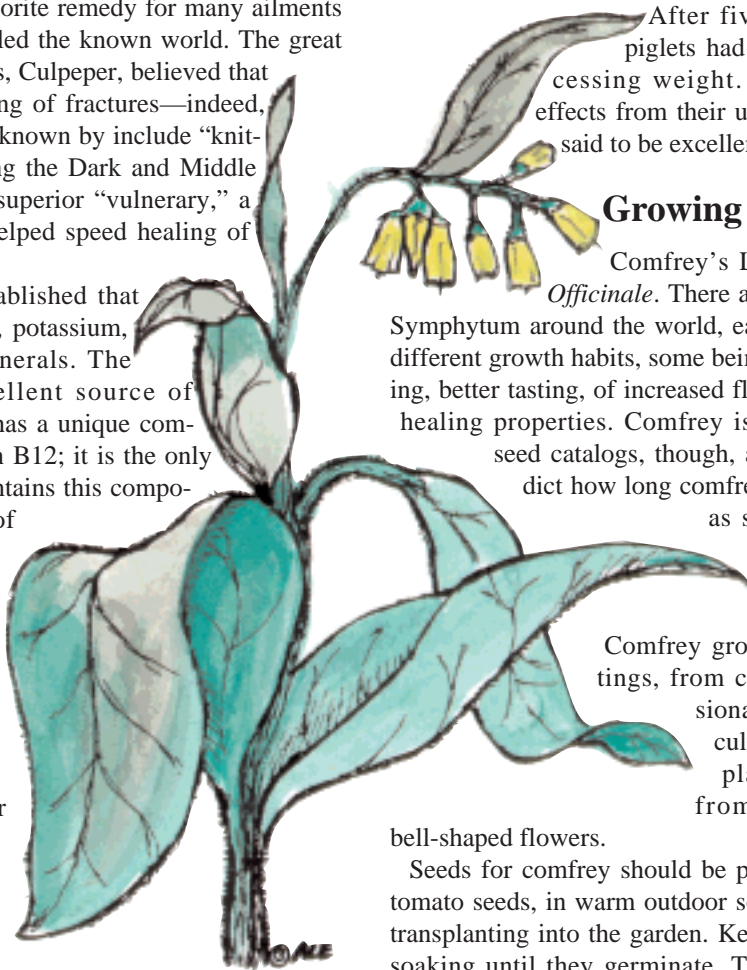
Comfrey grows readily from root cuttings, from crown cuttings, and occasionally from seed. It is difficult to acquire seed, since the plants produce only a few from their many pretty

bell-shaped flowers.

Seeds for comfrey should be planted as you would plant tomato seeds, in warm outdoor soil or in peat pots for later transplanting into the garden. Keep the seeds moist but not soaking until they germinate. Transplant when danger of frost is past.

Cuttings can be planted where you want the plants to grow, under one to two inches of fine soil or compost. Keep moist until the plants show two to four leaves of growth.

Plants benefit from a hay or grass mulch under the leaves and around the root system if you have extended dry spells. Otherwise, the plants provide their own root protection as lower leaves die and self-compost. Plants in full sun may wilt during the hot part of the day. Plants do well in partial sun, because they are protected from excess drying heat.



Comfrey grows wherever it has adequate water, but grows superbly in moist, rich, deep soil. It reaches a height of two feet or more and a spread of three feet. The root enlarges with each passing year, and can easily grow as large as a basketball. Plants will generally take over any garden area in a few years, becoming a nuisance. Daughter plants spring up all around your original plant, and can readily be removed and transplanted. Tilling daughter plants under will compound the problem by distributing healthy root cuttings all over the place. Spreading can be limited by burying pots with their bottoms removed, and planting the comfrey in that.

During the winter, the leaves die back, forming a dark mound over the plant. In mild winter areas, the plant may continue to send up narrow leaf sprouts. The plants remain green year-round in places like southern

Florida and southern California. In areas of severe winter cold, the plants will benefit from heavy mulching; some plants may be winter-killed otherwise.

The best way to acquire comfrey is to get a cutting from a neighbor, or someone in your area—the plants will then be well-adapted to your region.

How comfrey has been used

We tread on slippery ground when discussing the *food* uses of this plant. On one hand, country folks have long eaten the early spring leaves of comfrey—just as they have used the young growth of poke, a known poisonous plant. The Food and Drug Administration recently listed comfrey, chaparral, and sassafras as unsafe for human consumption.

Each type of plant does contain elements which can be harmful to some

people. Comfrey has been implicated in a handful of deaths from liver disease. It is difficult to find information on the unfortunate people who died, though, so we cannot ascertain how significant comfrey was in impairing their health conditions. Did they have pre-existing liver disease? Did they eat huge quantities of comfrey? Were they taking other medications that combined negatively with comfrey?

It's helpful to remember that many commonly-consumed plants have potentially poisonous compounds in them. The familiar potato, for example, contains *solanine*, a systemic toxin; but most people can eat potatoes without ill effects. Sassafras, like comfrey, is an old-time spring tonic annually consumed by thousands of people who survive the experience.

Although consumption of comfrey cannot be recommended, some people continue to use the plant as food and as edible medicine. Comfrey has a

A country moment



Golden Star follows a possum along the porch of Garnet Hunt White in Doniphan, Missouri.

faint taste of cucumber, and for best flavor the leaves are eaten when young and less than six inches in length. It is a favorite early spring vegetable among some country people. Tender young leaves are chopped and eaten raw in salads or cooked like spinach, or sauteed with other vegetables. One California gardener (who has not died of liver disease) reports using comfrey leaves to make a bright green tortellini dough.

Medicinally, comfrey leaf and root can be used fresh in poultices; a decoction (tea) of leaves or root can be made using water, milk, or port wine; or an alcohol-based tincture extract can be made for ready accessibility. My favorite use is in a salve or paste form.

Applying comfrey in any of its forms to an external injury or bruise will instantly stop most pains—as well as preventing excess bleeding. A hammered thumbnail quickly stops throbbing and will not bruise or discolor if a comfrey salve is applied immediately. It must be applied within a few minutes of the injury to stop bruises.

Comfrey salve can be made using a double handful of tightly compressed or chopped leaves to 12 ounces of firm lard. Melt the lard, add the comfrey, and cook at a simmer for an hour, or until the leaves blacken and shrivel. Strain the lard into a clean mason jar or other closeable container. When cool, the salve will be firm and greenish.

If you prefer to use vegetable oil, olive oil is superior as a healing adjunct. Follow the preceding directions using olive oil instead of lard. After straining, add a half ounce of beeswax or paraffin to the hot oil mix and stir until the wax is dissolved. You may have to add more or less wax, depending on how firm the salve is.

Both lard- and vegetable-oil-based salves will leave greasy stains on clothing when used, so it's a good

idea to cover the affected areas with a cloth or bandage you don't plan to keep.

Naturopath Dr. H.C.A. Vogel, author of *The Nature Doctor* (Keats, 1991), recommends comfrey for injuries to the connective tissue covering bones, for festering wounds, for wounds which refuse to heal, and for leg ulcers. He indicates that a comfrey poultice can ease the pain of gouty joints. He also notes that the use of comfrey extract known as Symphosan (prepared from the mucilaginous fresh raw comfrey) helps ease the pain of neuralgia or overly sensitive skin, and even helps eliminate wrinkles in the skin over time.

Using sensible precautions, comfrey wouldn't be used on gaping wounds which need stitches, or on deep or puncture wounds. Although comfrey teas have been used to help heal mouth and stomach ulcers, this use should not be encouraged.

Commercial sources

Park Seed Company,
Cokesbury Road, Greenwood,
SC 29647-0001

A packet of 10 seeds of Russian Comfrey (*Symphytum x Uplandicum*) costs \$1.35, plus \$ shipping. Write for their catalog.

Nichols Garden Seed Company, 1190 North Pacific Hwy, Albany, OR 97321-4598

Six two-inch-long root cuttings are \$4.65, or 12 for \$7.95. Shipping is \$1.50. Available only in spring. Write for their catalog.

For more information

The Herb Book, by John Lust.
Published by Bantam Books,
1980.

Herbal Medicine. The Natural Way to Get Well and Stay Well, by Dian Dincin Buchman. Published by Gramercy Publishing Co., New York, 1980.

The Rodale Herb Book: How to Use, Grow, and Buy Nature's Miracle Plants, edited by William H. Hylton. Published by Rodale Press, Emmaus, PA, 1974. Δ

A country moment



Evan Diesman-McDavid, 2½, of Alexandria, Kentucky, contemplates his world.